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PSYCHOLOGICAL ABSTRACTS

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GENERAL

4759. [Anon.] **Ivan Petrovitch Pavlov.** *J. Or. ganother.*, 1936, 20, 138-140.—A brief summary of Pavlov's life and work is given.—*J. Brockwell (Brown).*

4760. **Banting, F. G. Ivan Petrovitch Pavlov.** 1849-1936. *Amer. J. Psychiat.*, 1936, 92, 1481-1484.—A memorial sketch of Pavlov's life.—*R. Goldman* (Worcester State Hospital).

4761. **Bentley, A. F. Behavior, knowledge, fact.** Bloomington, Ind.: Principia Press, 1935. Pp. 391.—This is an analysis of the scientific bases of psychology by means of didactic logic. Certain features of science and of psychology are analyzed to find out what types of thought and reactions enter into the various types of psychology. Certain specimens are selected and these are analyzed according to the linguistic syndromes involved; the book is devoted to such topics as "Dominant Linguistic Techniques," "Linguistic Differentiations within Psychology," "Psychological Spaces and Times as Linguistic Techniques"; analyses of the psychologies of Dashiell, Hunter, C. K. Ogden, Watson, Washburn, Weiss, Woodworth, Dunlap, Dewey, M. Bentley, Kantor, and Titchener are made. There is a second part devoted to the "Problem of Postulation," or the relationship of language to knowledge and experience to fact. The third part is devoted to an analyses of what the author calls "Social Fact" in which the interrelations between persons are analyzed in terms of didactic thought and action. Five appendices are devoted to "Classificatory Devices."—*L. S. Selling* (Recorder's Court Clinic, Detroit).

4762. **Bentley, M. Conjunctive research in the sciences of life.** *Amer. J. Psychol.*, 1936, 48, 512-519.—A brief description of three forms of cooperation which promise to lead to a better understanding of different sciences by individuals engaged in co-ordinate fields, and a plea for more such understanding cooperation, although the need for specialized training is also emphasized.—*D. E. Johannsen* (Skidmore).

4763. **Bills, A. G. The eleventh annual meeting of the Midwestern Psychological Association.** *Amer. J. Psychol.*, 1936, 48, 525-526.—*D. E. Johannsen* (Skidmore).

4764. **Boring, E. G. Temporal perception and operationism.** *Amer. J. Psychol.*, 1936, 48, 519-522.—The author suggests that operationism leads to the following conclusions: "(1) A perceived duration or temporal pattern is a psychological entity that is inferred from and defined by certain operations of introspective report, which adequately imply the differentiation of the perception. . . . (2) The term *immediate* as applied to temporal experience turns

out to be meaningless. If *immediacy* means *without lapse of time*, then the word can not be applied to the perception of an enduring event. If it means *without intermediate processes between the event and the knowledge of it*, then it can not apply to any event. . . . (3) What is thus said of time may be said of everything else. If we could argue that the immediate perception of extension points toward the immediate perception of duration, then we can argue that the conclusion that duration can not be immediately perceived points toward a conclusion that extension can not be immediately perceived. . . . Thus we get altogether rid of the troublesome notion of the immediacy of experience. If it applied to extension it had to apply to duration, and, applied to duration, it was both an impossible paradox and an obvious introspective fact. The trouble seems to be that what is introspectively obvious is not necessarily true."—*D. E. Johannsen* (Skidmore).

4765. **Carnap, R. Philosophy and logical syntax.** London: Kegan Paul, 1935. Pp. 100. 2-6.—(Not seen).

4766. **Dallenbach, K. M. Some gustatory apparatus.** *Amer. J. Psychol.*, 1936, 48, 504-507.—*D. E. Johannsen* (Skidmore).

4767. **Dallenbach, K. M. The "Yogi puzzle" and the "endless spiral": demonstrational devices of apparent movement.** *Amer. J. Psychol.*, 1936, 48, 509-511.—*D. E. Johannsen* (Skidmore).

4768. **D(allenbach), K. M. The Worcester meeting of the Society of Experimental Psychologists.** *Amer. J. Psychol.*, 1936, 48, 526.—*D. E. Johannsen* (Skidmore).

4769. **Fender, F. A. A method for prolonged stimulation of the nervous system.** *Amer. J. Physiol.*, 1936, 116, 47.—"The principle is that of the induction coil. Six primary coils are arranged on the faces and at the ends of a shell, which is incorporated into a cage. These set up electromagnetic fields in the three primary planes when energized, in pairs, successively, by alternating current. Distribution of the current is carried out by a motor-driven switch. The ordinary 60 cycle, 110 or 220 volt power source is used. The secondary units, in which the stimulating electromotive force is induced, are small coils of 6000 turns, coated with moulded rubber, fitted with solid or braided silver leads (depending upon the motion to be encountered). They are inserted surgically into the body of the subject, with leads in contact with the nervous tissue to be stimulated. After recovery, repeated observations on the effect of stimulation may be made, or the subject may be submitted to prolonged stimulation."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4770. Ferree, C. E., & Rand, G. An instrument for measuring dynamic speed of vision, speed of accommodation and ocular fatigue. *Arch. Ophthalm., Chicago*, 1936, 15, 1072-1087.—Describes a compound rotary tachistoscope designed for measuring dynamic speed of vision. The letter E, which can easily be rotated to any of eight positions, is the test object. Three E's are successively exposed during one revolution of the sectored disks; the first E is to the right at 33 cm., the second on the median line at 6 m., and the third somewhat to the left at 33 cm., but these distances and also the horizontal separation can be varied according to whether accommodation or movements involving the extra-ocular muscles is of greater interest. The time required for the total reaction or its elements is readily determined. The authors suggest that the instrument may be useful in determining fitness for certain vocations, as a means of measuring oculomotor functions and fatigue and recovery effects, and as a means of training eyes to increased facility in accommodation and oculomotor adjustments.—*M. R. Stoll* (Mass. Eye & Ear Infirmary).

4771. Gerbrands, R., & Volkmann, J. A wax-paper kymograph. *Amer. J. Psychol.*, 1936, 48, 498-501.—*D. E. Johannsen* (Skidmore).

4772. Gergö, E. A tudat fiziológiája alapjairól. (The physiological foundations of consciousness.) *Mag. psychol. Szle*, 1935, 8, 3-25.—Theoretical considerations as well as empirical observations point to the fact of egocentricity as the common principle involved in consciousness. Consciousness is further associated with the concentration and distribution of a cortical energy supply. The background of consciousness is created by continuous sensations streaming in mostly from the visceral parts of the organism. Perception, memory and thinking are circuited, as it were, to this background. Attention is such a circuiting process. Processes may be put out of circuit (*ausgeschaltet*), as in repression, or the total conscious background may be put into circuit (*eingeschaltet*), as in awakening. (Résumé in German.)—*H. J. Wegrocki* (Worcester State Hospital).

4773. Green, H. D. The coordirectograph. *Amer. J. Physiol.*, 1936, 116, 64.—"The coordirectograph (demonstrated) is a mechanical device designed to enlarge or reduce proportionally any plane geometric curve in one direction without altering its dimensions in the direction at right angles to the first. It is described in the *Rev. sci. Instr.*, 1936, 7."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4774. Greenwald, D. U. A modification of Greenwald's apparatus for measuring electrodermal responses. *Amer. J. Psychol.*, 1936, 48, 508-509.—*D. E. Johannsen* (Skidmore).

4775. G (rindley), G. C. Obituary notice: Professor C. Lloyd Morgan. *Brit. J. Psychol.*, 1936, 27, 1-3.—With portrait.—*R. R. Willoughby* (Brown).

4776. Huddleston, O. L., Whitehead, R. W., & Moritz, B. E., Jr. Demonstration of the polyelectro-physiograph. *Amer. J. Physiol.*, 1936, 116, 82-83.—"Our machine has been constructed in such a way

that, when used with suitable electrodes, it may be employed to detect, measure or record any small electrical current which may develop in any organ or tissue such as the heart, nerve, muscle or gland tissue during functional activity. The electrical currents may be observed as either standing or transient waves or may be photographed. In general, the instrument is composed of two cathode ray tubes which are controlled by their respective amplifiers and sweep circuits. This portion of the machine is operated by the ordinary 110 volt 60 cycle current and may be used as a regular cathode ray oscillograph. A high gain direct current amplifier may be combined with the oscillograph unit when it is desirable to obtain greater amplification. The instrument contains an adjustable standardization apparatus which may be used either to measure the voltage of a bioelectric current or to adjust the sensitivity of the machine. If one wishes to listen to the electrical vibrations associated with some physical or physiological vibratory activity it is only necessary to switch them into the power amplifier which operates the loud speaker."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4777. Hunt, G. A. Mounting for the Worth-Black amblyoscope. *Arch. Ophthalm., Chicago*, 1936, 15, 898-899.—Describes a mounting and card ejector facilitating use of the amblyoscope in fusion training.—*M. R. Stoll* (Mass. Eye & Ear Infirmary).

4778. Klein, D. B. *General psychology*. New York: Holt, 1936. Pp. 560. \$2.50.—This introductory text is written to meet the needs of three groups of students: (1) students desiring general cultural training in psychology; (2) students needing psychological training to supplement their work in related fields; and (3) students wishing to do intensive work in psychology proper. The book is planned more especially for (1) and (2) and for students who "regard psychology as a propaedeutic to social sciences." However, the needs of (3) are duly considered. The book summarizes the general facts and principles which are accepted as essentials to an understanding of the field, but the author also gives the reader an historical and theoretical orientation in these facts and principles. The titles of the chapters are: psychology and scientific thought, 1-16; mental processes and psychological schools, 17-29; systems of psychology and their views of mind, 30-78; motivation and conation, 79-116; the psychophysiology of motivation, 117-163; the psychology of emotion, 164-214; some problems of learning (definition, association and conditioning), 215-266; more problems of learning (maze learning, trial and error learning versus insight, pleasure-pain and learning, acquisition of skill, animal and human learning, learning efficiency), 267-330; cognition: thinking and related functions, 331-393; cognition: perceiving and related functions, 394-492; the psychology of individual differences (the quantitative approach, psychological tests, measurement of intelligence, personality differences), 492-546.—*C. R. Carpenter* (Bard College).

4779. Kroeber, A. L. **So-called social science.** *J. soc. Phil.*, 1936, 1, 317-340.—After developing a scheme of classifying the scientific disciplines with regard to level and approach, the author attempts to evaluate the scientific adequacy of the social sciences. Scientific approaches may be logistic, historical, scientific or practical. In the social sciences "economics, government and sociology operate heavily through the logistic and utilitarian approaches; the two others, anthropology and history, little or not at all. The historical approach is used exclusively and consciously by history; considerably but hesitatingly and without clear recognition by anthropology; as a recognized minor sub-activity by economics and government; not at all by sociology. The vacancy comes in the properly scientific compartment." The author does not wish to belittle the practical sciences, but points out that systematized science has gained but little from them. The great need is for a scientific sociology or social psychology.—J. F. Brown (Kansas).

4780. Kuo, I. C. [Psychology: old and new.] *Quart. Rev. Sun Yat-sen Inst. Advanc. Cult. Educ.* (Chinese), 1935, 2, 923-944.—The author first gave an historical retrospect of psychology and then reviewed the characteristic tendencies of modern psychology, viz., (1) from the subjective to the objective standpoint, (2) from the analytic to the synthetic approach, (3) from horizontal or cross-section analysis to perpendicular or longitudinal inquiry, (4) from quantitative measurement to qualitative investigation, (5) from the static to the dynamic viewpoint, and (6) from general to differential study of behavior. According to the author, there are two fundamental errors common to all schools of psychology, viz., (1) a wrong standpoint, either dualism or mechanical materialism, and (2) a wrong methodology of formal logic, either deductive or inductive. Finally, he argues that an exact psychology must be established on the ground of a new philosophy which assumes the physical material as the substance of the universe and all phenomena in the universe as derived from the physical development; in other words, it assumes mind as the highest form of physical development and not as a product of human consciousness. The exact psychology must be human (i.e., with human beings as the object of study), must be social (i.e., taking human behavior in the social environment), and must adopt a dynamic logic or the method of material dialectics so as to grasp the development, continuity, and correctness of behavior.—C.-F. Wu (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

4781. Liberson, W. **Une nouvelle application du quartz piézoélectrique: piézoélectrographie de la marche et des mouvements volontaires.** (A new application of piezoelectric quartz; piezoelectric recording of gait and of voluntary movements.) *Travail hum.*, 1936, 4, 196-202.—An apparatus is described which utilizes the principle that pressure on the surfaces of a quartz crystal, appropriately ground, varies the charge on the surfaces. A weight

supported by springs presses on the crystal to various degrees in response to bodily acceleration. Appropriate amplification devices record on sensitive paper. The entire unit is strapped to the subject en route. Two units may be used to record components in two directions. The method is simpler than that of plotting curves from measurements of moving pictures as developed by Bernstein.—H. E. Burt (Ohio State).

4782. Loo, Y. T. **Ivan Petrovitch Pavlov, 1849-1936.** *Chung Hwa educ. Rev.*, 1936, 23, No. 11, 1-7.—An appreciation and review of the life and work of late Prof. Pavlov, with a portrait.—C.-F. Wu (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

4783. Mayer, J. **Social science methodology.** *J. soc. Phil.*, 1936, 1, 364-381.—The author attempts to differentiate between the scientific and the pseudo-scientific in social research. In organizing a new science "four concrete problems would seem to require special attention: first, to ascertain the relationship of the new field to already organized sciences; second, to discover or develop its basic concepts; third, to clear away long-standing misconceptions which hamper progress; and fourth, to utilize and develop tools provided by the sciences already established."—J. F. Brown (Kansas).

4784. Miller, D. S. **James's philosophical development; Professor Perry's biography.** *J. Phil.*, 1936, 33, 309-319.—Perry's biography reveals the moral and prophetic greatness of William James but also his technical weakness. James's enthusiasm for the full and open life led him to reject determinism, monism, etc., which he felt were inimical to his ideals. In the ensuing controversies his analyses were often weak and his arguments loose. Instead of relying on the pragmatic theory of truth and the pragmatic method he employed the prevailing controversial attack. Instead of asking "Does consciousness exist?" his question should have been "In what does consciousness consist?" Instead of denying determinism his problem should have been to discover the meaning and limits of human freedom. Instead of espousing pluralism he should have investigated the ways in which the universe is one and the ways in which it is many. He does apply his own method when he justifies the concept of personality and attempts to clarify its meaning. His lack of continuous and rigorous analysis reflects the prevailing weakness of the philosophic environment of the period.—E. T. Mitchell (Texas).

4785. Newhall, S. M. **Projection tachistoscopy.** *Amer. J. Psychol.*, 1936, 48, 501-504.—D. E. Johannsen (Skidmore).

4786. Neyman, J., & Pearson, E. S. [Eds.] **Statistical research memoirs.** Cambridge, England: University Press. Vol. 1, 1936. Yearly. 15 s. per volume.—R. R. Willoughby (Brown).

4787. Oates, W. J. **The doctrine of the mean.** *Phil. Rev.*, 1936, 45, 382-398.—A discussion of the various senses of "the mean" in the philosophies of the Pythagoreans, Plato, Aristotle, and the Stoics and Epicureans. There are two radically different

senses, (1) a mathematical metaphor, and (2) an entity. From the Pythagoreans down "the mean" was connected with form or limit. The unlimited was conceived as evil, "the mean" as good. There are both a qualitative and a quantitative phase in Aristotle's ethical mean. Aristotle accounts for sense perception by saying that "the sense is a kind of mean between the opposite extremes in the sensibles." The sensory mean is related to the ethical mean.—*M. F. Martin* (West Springfield, Mass.)

4788. Ranschburg, P. *Újabb természettudományos irányok a pszichológiában.* (Contemporary naturalistic directions in psychology.) *Mag. psychol. Szle.*, 1935, 8, 281-292.—Critical remarks on the researches of such behavioristically inclined psychologists as Warner, Brintle, Hoagland, Gellermann, Simpson, Sante de Sanctis. (Résumé in German.)—*H. J. Wegrocki* (Worcester State Hospital).

4789. Rickman, J. *Obituary: Montagu David Eder.* *Brit. J. med. Psychol.*, 1936, 16, 93-95.—*R. R. Willoughby* (Brown).

4790. Roome, N. W. *Simple synchronous motor for the Harvard kymograph.* *Science*, 1936, 84, 91-92.—The motor described was "devised to operate a small Harvard kymograph with two drums, the original spring drive being found to produce a very inconstant drum speed. . . . Its speed is constant when the frequency of the alternating-current supply is accurately controlled . . . and is independent of variations of the line voltage or of the load applied. It requires manual starting, will run in either direction, and uses no belts or external gears."—*R. Goldman* (Worcester State Hospital).

4791. Schiller, P. v. *Sguardo sullo sviluppo della psicologia in Ungheria.* (A survey of the growth of psychology in Hungary.) *Arch. ital. Psicol.*, 1936, 13, 251-254.—*R. R. Willoughby* (Brown).

4792. Schlick, M. *Meaning and verification.* *Phil. Rev.*, 1936, 45, 339-369.—Stating the meaning of a sentence amounts to stating the way in which it can be verified or disproved. To understand a verbal explanation we must know the meaning of the explaining words beforehand. There is no way of understanding any meaning without ultimate reference to "ostensive" definitions, i.e. to experience. C. I. Lewis's arguments (*Phil. Rev.*, March, 1934) against the "logical positivism of the Viennese circle" are answered in detail. By verifiability Schlick means logical possibility of verification. There are degrees of empirical possibility but not of logical. No meaningful problem can be insoluble in principle. The chief difference between idealism and positivism is that positivism keeps clear of the egocentric predicament. Original experience is "without a subject." The naïve representation of the world, as the man in the street sees it, is correct. Many troublesome problems of philosophy arose only from an inadequate description of the world by means of faulty language.—*M. F. Martin* (West Springfield, Mass.)

4793. Strong, J. *Transmission curves for the new polarizers.* *J. opt. Soc. Amer.*, 1936, 26, 256.—

Two new types of polarizers are now available commercially, a filter type with the active material dispersed throughout and a plate type with a coating of active material. Transmission curves are given for a typical material of each kind with the plates (or films) parallel and crossed.—*M. R. Stoll* (Mass. Eye & Ear Infirmary).

4794. Sung, S. S. [The scientific basis of "psychological reconstruction."] *Nanking: Cheng Chung Book Co.*, 1935. Pp. 160. \$40 mex.—This book attempts a scientific justification—mainly based upon the teachings of modern psychology and supplemented by those of physiology, zoology, and other sciences—for the late Sun Yat-sen's doctrine of "Difficult to know but easy to act" in his theory of "psychological reconstruction." It consists of six chapters. Chapter I, an introduction, discusses the origin and significance of Sun's doctrine and its close relation to modern psychology, and points out that "psychological reconstruction" is a theory based upon scientific teachings and is not a speculative philosophy. "Knowing" is analyzed to include the recognition and the thought process or the so-called conscious inner activity; and "acting" is defined as the overt action resulting from the response of a human organism to the environment by means of inborn reflexes and instincts in participation of the adjusting habits and trial-and-error behavior. Chapter II discusses the intimate relationship of knowing and acting to the environment, and explains that both knowing and acting are in a strict sense the physiological reactions of a human organism to the environmental stimuli. "Easy to act" is explained by the fact that ideas may be assimilated and energy may be transferred; and "Difficult to know" by the fact that accumulation of experience and information and training of thinking need a long time. The old doctrine of "Difficult to know but easy to act" is examined and proved to be erroneous from the angles of judgment and reasoning. Chapter III examines the doctrine of "Difficult to know but easy to act" from the angle of the thinking process and demonstrates its importance in the "psychological reconstruction" of Chinese people. Chapter IV analyzes the scientific principles of "Difficult to know." It is examined and demonstrated by the difficulty of recognition, difficulty and obstacles of thinking, unreliability of inference, and other explanations. The older doctrines of "Easy to know but difficult to act" and "Identity of knowing and acting" are either unscientific or superficial. Chapter V analyzes the scientific principles of "Easy to act." It is examined and demonstrated by the easiness of reflex action, instinct, imitation, and habit and trial-and-error behavior. Chapter VI concludes the book by a discussion of the real meaning of Sun's doctrine, and by a comparison and refutation of other doctrines.—*C.-F. Wu* (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

4795. Wood, L. *Concepts and objects.* *Phil. Rev.*, 1936, 45, 370-381.—The philosopher who assumes a universal as the literal object of a concept

is a victim of wishful thinking. The object of a concept is a class of particulars resembling one another. Qualitative resemblance depends partly on the comparing mind and partly on the structure of the objects. Certain mathematical concepts and philosophical categories are only quasi-objective. The concept itself is a unique mental event which cannot be literally shared by more than one mind or recur identically in the same mind. This author seeks to explain the concept's objectivity by regarding its "intent," or meaning, as a psychological factor, on a par with quality, intensity, and duration. The failure of most psychologists to take account of "intent" he explains by the fact that it is a peculiarly conscious attribute with no exact analogue in the physical world. Meaning is not a relation. It is a relating activity which inheres in the interpreting mind. Conceptual knowledge involves multiple symbolism. A multiplicity of concepts, existing in different minds and at different times in the same mind, symbolize any member of a class of objects.—*M. F. Martin* (West Springfield, Mass.)

[See also abstracts 4877, 5032, 5058.]

SENSATION AND PERCEPTION

4796. Abel, T. M. Cutaneous localization among normals and subnormals. *Amer. J. Psychol.*, 1936, 48, 457-466.—The problem of the present study was to determine to what extent the visual dominance found in normal adults as compared to children is found in subnormal individuals of a fair degree of physical maturity. The S's were 10 normal girls (CA 15-11 to 16-11; IQ's 85-110) and two groups of subnormals. The first group of subnormals consisted of 10 girls (CA 16-0 to 16-11; IQ's 50-64) from a training class for subnormals. The other group consisted of subnormal children from Letchworth Village who showed special visual ability; it represented both whites and negroes (8 boys and 3 girls). A quadrilled pattern, 5 x 5 cm., was stamped on the volar surface of the non-preferred arm. In one set of experiments E stimulated some part of the square and S (blindfolded) pointed with a stylus to the point touched; in the other set of experiments, S's blindfold was removed and he looked at the pattern while he pointed (without touching the skin). The score was the magnitude of the error made (in mm.). The normal group and the special subnormal group did reliably better by the visual than by the tactual method; the subnormal girls did better by the tactual method.—*D. E. Johannsen* (Skidmore).

4797. Aronoff, S., & Dallenbach, K. M. Minor studies from the Psychological Laboratory of Cornell University. LXXXI. Adaptation of warm spots under continuous and intermittent stimulation. *Amer. J. Psychol.*, 1936, 48, 485-490.—The problem of the present study was to determine whether a single warm spot adapts completely under a stimulus temperature that is markedly above the physiological zero. Three S's were used. Stimulation was punctiform, and was on an area 3 x 5 cm. on S's left fore-

arm. The temperature remained constant at 43.0°-43.5° C. The spots were selected and marked at the beginning of the experimental hour. By the continuous method the stimulator was applied to the spot and held there until S reported complete adaptation. By the intermittent method the stimulator was held on the spot for 1 sec. and then off for 3 sec. until S reported thermal indifference at three successive stimulations. Under all conditions complete adaptation resulted. Its normal course is discontinuous; the intensity fades gradually and rises abruptly several times before adaptation is complete. The time required for complete adaptation is partly dependent upon the intensity level of the spot being stimulated; low level spots adapt sooner than high level spots. The adaptation time varies with the S and with the method, being longer for the intermittent method.—*D. E. Johannsen* (Skidmore).

4798. Ciurlo, L. Azione emodinamica degli stimoli olfattivi. (Hemodynamic action of olfactory stimuli.) *Arch. ital. Otol.*, 1933, 44, 321-337.—(Biol. Abstr. X: 8267).

4799. Clark, L. B. Dark adaptation in the insect *Dineutes assimilis*. *Amer. J. Physiol.*, 1936, 116, 28.—"The threshold gradually decreased with stay in the dark until a minimum was reached after which it remained constant. With increase in the intensity of the adapting light, the initial threshold became higher, the threshold dropped faster and did not reach the minimum until after a longer time in the dark. The results are described by an equation similar to that of a bimolecular isotherm."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4800. Culler, E. Acoustic value of the components of the auditory system in cats. *Amer. J. Physiol.*, 1936, 116, 33-34.—"The threshold of hearing in five cats at 125, 1000 and 8000 cycles was first established; some part of the acoustic system was then surgically ablated and hearing again measured. . . . Destruction of one cochlea, in a cat otherwise intact, is followed by a hearing loss of 3 to 4 decibels. Destruction of both cochleae eventuates in total deafness to air-borne sounds (no response to tones 125 decibels above the animal's normal threshold). Ablation of a single hemi-cortex is followed by a hearing loss of the same magnitude—3 to 5 decibels. . . . It follows that the uncrossed fibers of the auditory system are virtually equal in acoustic significance to the crossed components. Statistical analysis fails to reveal even a presumptive superiority of the crossed pathways."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4801. Dionessow, S., Lebedinsky, A., & Touretzaev, J. [The influence of cold on visual sensitivity in dark adaptation.] *Fiziol. Zh. U.S.S.R.*, 1934, 17, 23-31.—Visual threshold is determined under conditions of dark adaptation. The forearms are placed in cold water and the visual sensitivity is increased in most cases. The cold may also influence the speed of adaptation.—*H. E. Burt* (Ohio State).

4802. Dubner, H., Gerard, R. W., & Kobrak, H. Objective measures of hearing. *Amer. J. Physiol.*

1936, 116, 38.—"Perforating lesions of the cochlea, in any event, abolish in order: middle ear reflexes, auditory path impulses, and cochlear potentials. With which, if any, conscious audition is to be equated is for further quantitative study to decide."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4803. Feldman, J. B. Dark adaptation as a clinical test. *Arch. Ophthal., Chicago*, 1936, 15, 1004-1019.—Describes the technique of testing dark adaptation with the instrument earlier described by the author and reports a summary of results based on 1007 observations. Sensitivity is specified in photons, the normal threshold after 30 minutes' dark adaptation being 0.000,010 photon, 0.000,015 being considered high normal and 0.000,020 pathological. Pupil size was reduced to a minimum with miotics and the eyes were tested alternately at 3-minute intervals after a preceding interval of light adaptation. Repeated tests showed a tendency for normal eyes to improve through experience but for pathological eyes to show further reduction of sensitivity because of fatigue. Occasionally high thresholds were found which fell well above the smoothed curve of dark adaptation; these are attributed by the author to "rod suppression" and appear more frequently in pathologic eyes. A review of results in classified pathological cases indicates that the test may have some value in prognosis, although the occurrence of normal adaptation curves and pathological curves in apparently similar cases cannot be explained satisfactorily.—*M. R. Stoll* (Mass. Eye & Ear Infirmary).

4804. Ferree, C. E., & Rand, G. The effect of length of exposure of the text object on visual acuity. A correction. *J. opt. Soc. Amer.*, 1936, 26, 272.—Denies the inference that the authors have made a statement regarding the effect of length of exposure on acuity, and points out that this effect would doubtless be different for different individuals and for different age groups.—*M. R. Stoll* (Mass. Eye & Ear Infirmary).

4805. Gammon, G. D., Starr, I., Jr., & Bronk, D. W. The effect of counterirritation upon pain produced by cutaneous injury. *Amer. J. Physiol.*, 1936, 116, 56.—"From these observations it would appear that modification of pain by circulatory change depends on alteration of temperature, the effect of the blood flow on local concentration of the products of injury which set up pain impulses and tissue swelling. A study of these phenomena in cutaneous nerves in cats from similarly injured skin areas has been made. Under these conditions there is a steady discharge of rapid impulses which is greatly increased by heat with little decline in frequency due to adaptation. The question whether slow impulses are also concerned is under investigation as well as the relation of this discharge to the activity of temperature receptors."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4806. Garth, T. R. Color blindness in Turkey. *Science*, 1936, 84, 85.—Using the Ishihara test, 384 children (from kindergarten to seventh grade) and

306 college students were tested. 24 of the males (5.3%) and none of the females were found to be red-green blind. No cases of monocular color blindness were found.—*R. Goldman* (Worcester State Hospital).

4807. Gerchuni, G., Lebedinsky, A., & Wolochow, A. [Electrical excitation of the auditory apparatus.] *Fiziol. Zh. U.S.S.R.*, 1934, 17, 168-175.—The external ear is filled with a solution and an electrode inserted in the latter. The stimuli are controlled by the discharge of a condenser. The authors conclude that the auditory nerve is stimulated directly. With stimulation by alternating current above 300 cycles auditory perception is similar to what it would be through a telephone.—*H. E. Burt* (Ohio State).

4808. Granit, R. Die Elektrophysiologie der Netzhaut und des Sehnerven mit besonderer Berücksichtigung der theoretischen Begründung der Flimmermethode. I. Einleitung. Die Elektrophysiologie der Netzhaut und des Sehnerven. II. Die Flimmermethode und ihre Anwendung für das Studium der Netzhautfunktionen. (The electrophysiology of the retina and optic nerve, with special consideration of the theoretical basis of the flicker method. I. Introduction. The electrophysiology of the retina and optic nerve. II. The flicker method and its application for the study of retinal functions.) *Acta Ophthal., Kbh.*, 1936, Suppl. VIII, 14. Pp. 98.—In this monograph the author summarizes the essential advances made in this field since 1929, points out the analytical possibilities of the flicker method for the study of visual functions, and outlines the systematic problems that are attacked.—*R. J. Beitel, Jr.* (American Optical Company).

4809. Grimm, R. Erscheinungen und Messungen bei Konvergenz und Fusion. (The phenomena and measures in convergence and fusion.) *v. Graefes Arch. Ophthal.*, 1934, 133, 121-130.—The visual angle, the direction of the perimeter, and the distance from the subject were varied in studying fusion images obtained by observing stimuli using convergence or divergence. The possibility of unequal accommodation of the two eyes during fusion was established in various experiments where the objects to be fused were at unequal distances from the subject. The localization of depth of the fused image through forced convergence coincides with the intersection of the lines of regard whether the accommodation is symmetrical or not. Convergence has a decisive influence in the fusion of images at about 8 to 10 meters distance. Accommodation is a psychoreflex, involuntary, and without importance for the egocentric localization; it intervenes actively only in the relative localization of near objects.—(Courtesy *Année psychol.*)

4810. Grindley, G. C. The variation of sensory thresholds with the rate of application of the stimulus. I. The differential threshold for pressure. *Brit. J. Psychol.*, 1936, 27, 86-95.—Evidence is given that the differential threshold for pressure on the hand increases progressively as the rate of change of pressure is increased. With standard pressures of

from 200 to 750 gm. applied to an area of 1.8 sq. cm. on the back of the hand, the threshold for an increase of pressure at a rate of 50 gm. per sec. may be more than ten times as great as the threshold for an increase of pressure at the rate of 2000 gm. per sec. The threshold for decrease of pressure is usually greater than that for increase at a similar speed. These results can be explained in terms of sensory adaptation.—*M. D. Vernon* (Cambridge, England).

4811. *Guilford, J. P., & Hackman, R. B. Varieties and levels of clearness correlated with eye movements.* *Amer. J. Psychol.*, 1936, **48**, 371-388.—The problem of the present study was to measure the attention value of visual stimuli by an objective method. The stimulus material consisted of letters, numbers, and geometrical forms in different patterns, presented by means of a projection lantern, with the brightness reduced by using a 100-watt bulb. Exposure was for 100 σ . An eye-movement camera photographed the corneal light from the left eye only, although observation was binocular. The 24 slides in the set were observed twice by the 5 S's under two different instructions. They were required to report first upon attributive clearness (the term was not used), and second upon cognitive clearness. The photographic record was long enough to show what the eye did before, during, and after the exposure under the two instructions. Results show that on the average 1.5 to 2.0 eye movements occur in the 3-sec. interval preceding exposure, in spite of attempts to keep the fixation constant. Cognitive instructions induce about 14% more eye movements before exposure and about 60% more immediately after exposure, and they average 27% greater in extent and have a latent time about 40% shorter than do the attributive instructions. Attributive and cognitive clearness are apparently independent, as their correlation approaches 0 if the objective factors of attention are held constant. These factors of attention (size, isolation, novelty, position) are more effective for cognitive than for attributive clearness (r 's of .82 and .68). These factors of attention are almost entirely ineffective in determining eye movements after momentary exposure.—*D. E. Johannsen* (Skidmore).

4812. *Hecht, S., & Haig, C. The effect of light adaptation on dark adaptation.* *Amer. J. Physiol.*, 1936, **116**, 72.—"We have measured for the human eye the influence of preadaptation of a field 5° in diameter situated 30° nasally from the center, using a very low visual acuity as criterion." Certain changes in the range and speed of adaptation occur as the intensity light of adaptation increases from 300 to 400,000 photons. "Measurements with extreme red light show mostly the colored first stage of adaptation, and the behavior of the dark adaptation as a whole, following different intensities of light adaptation, shows much the same characteristics as the colored primary portions alone of the data with violet light. We interpret the measurements to mean that the colored primary stage of dark adaptation represents mainly the function of the

cones, while the colorless secondary stage of dark adaptation is a function of the rods."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4813. *Hecht, S., & Shlaer, S. Intermittent stimulation by light. V. The relation between intensity and critical frequency for different parts of the spectrum.* *J. gen. Physiol.*, 1936, **19**, 965-979.—Using various wave lengths of light and a centrally located test field 19° in diameter, it is found that the fusion frequency data fall into a low intensity section (rod function) and a high intensity section (cone function). The intensity range covered by the flicker function increases from the red to the violet. The cone portion of the curves is in the same position on the intensity axis for all wave lengths, while the rod portion is shifted to lower intensities without change in shape on decreasing the wave length. The data are described by two equations, one for the rods and one for the cones, derived from the general stationary state equation.—*M. A. Rubin* (Clark).

4814. *Hecht, S., & Smith, E. L. Intermittent stimulation by light. VI. Area and the relation between critical frequency and intensity.* *J. gen. Physiol.*, 1936, **19**, 979-991.—The flicker fusion frequency data for centrally fixated retinal areas of 2° diameter or less are described by a single equation; for diameters above 2° a double function exists. It is found from the curves for rod and for cone data that area has no effect on the basic nature of the flicker relation through each receptor system. The curves for rod and cone function are described by two equations derived from the general stationary state equation.—*M. A. Rubin* (Clark).

4815. *Hoagland, H. Adaptation of cutaneous tactile receptors. VI. Inhibitory effects of potassium and calcium.* *J. gen. Physiol.*, 1936, **19**, 943-951.—Adaptation of the mechano-receptors in frog's skin is hastened by the application of Ringer's solution containing 15 times the normal amount of calcium or potassium. The two ions differ in that the K effect is produced more rapidly than the Ca effect and is readily reversible, whereas the Ca effect is not. On the basis of this and other evidence it is concluded that Ca is not normally involved in the adaptation process, and that the K hypothesis of adaptation is further substantiated.—*M. A. Rubin* (Clark).

4816. *Hoagland, H., & Rubin, M. A. Adaptation of cutaneous tactile receptors. V. The release of potassium from frog skin by mechanical stimulation.* *J. gen. Physiol.*, 1936, **19**, 939-943.—The demonstration that potassium is released from the epithelial cells of frog's skin supports the hypothesis that potassium is involved in the adaptation mechanism of frog mechano-receptors.—*M. A. Rubin* (Clark).

4817. *Hovey, H. B. Some factors influencing the brilliance limen of vision.* *Amer. J. Psychol.*, 1936, **48**, 434-445.—The problem of the present study was to determine what effect certain configurational factors have upon the difference limen for brilliance. 5 S's were used. The neutral gray background was illuminated constantly to a brightness of about 3.2 ml. The comparison area could be

varied from .002 to .024 of the background intensity in steps of .002. A modified form of the method of constant stimulus differences was used. The configurational conditions were: (1) a stationary, oblong comparison stimulus, (2) similar to (1) except that S's fixation was constant during the presentation and removal of the comparison stimulus, (3) comparison stimulus moved, (4) comparison stimulus produced phenomenal movement, (5) similar to (4) except that S tried to identify the circles producing the motion, and (6) comparison stimulus produced a flicker. S was given 100 trials at every step under every condition, and the comparison stimulus was presented 50% of the time. It was found that although the limen for brilliance is in part a function of the field pattern, and the relative brightnesses are not exclusive determiners of it, it can be adequately expressed only in terms of the curve of distribution of perceptibility as a function of stimulus intensity. "The limen tends to follow the course described by the integral of the normal distribution curve, as the differences in intensity increase progressively above the standard stimulus." The phenomenon of motion (either real or apparent) tends to increase the slope of the curve. The author feels that the fluctuations from trial to trial represent a real shifting of the limen, and are not merely a function of attention.—D. E. Johannsen (Skidmore).

4818. Hunter, R. S. Gloss investigations using reflected images of a target pattern. *J. opt. Soc. Amer.*, 1936, 26, 190-196.—A target pattern of concentric rings varying from fine lines to broad bands has been placed in the open face of a desk lamp. This luminous target is useful in the study of the gloss characteristics of the more glossy surfaces. The lines and bands of various sizes in the target provide means for studying surfaces of a wide range of "distinctness-of-reflected-image" gloss. Records may be made of which lines and bands are visible by reflection from different surfaces. Such records serve as permanent gloss values for the different surfaces studied. The dark areas of the target immediately adjacent to the luminous areas provide ideal conditions for the identification of surface "bloom." The best gloss differentiations are made when the lamp is used in a darkened room so that the luminous pattern is the only source of light illuminating the surfaces inspected. Photographic records of gloss and unusual gloss effects are discussed.—M. R. Stoll (Mass. Eye & Ear Infirmary).

4819. Irvine, S. R., & Ludvigh, E. J. Is ocular proprioceptive sense concerned in vision? *Arch. Ophthal.*, Chicago, 1936, 15, 1037-1049.—After remarking on the tendency to refer to the proprioceptive sense of the ocular muscles as a factor in visual perceptions and its disturbance as a cause of certain anomalies, the authors cite evidence indicating that there is no proprioceptive sense in the extra-ocular muscles. In an earlier article Irvine showed that a proprioceptive sense cannot be demonstrated anatomically. A vibration test failed to produce evidence for such a sense, but this could not be considered

as conclusive since the muscles are not in close proximity to bone. No myotatic reflexes could be demonstrated, but possible objections to the conditions of the test are recognized. The anatomical peculiarities of the extra-ocular muscles suggest a functional similarity to smooth muscle, and this is also indicated by the demonstration that the threshold for response to galvanic or faradic currents is higher than that of other muscles. Evidence from position sense is shown to be inadequate to prove the existence of a proprioceptive sense, since it fails when the eye is moved involuntarily or when paralysis of an ocular muscle prevents movement. Similarly, apparent movement of objects in space in cases of recent nystagmus and inability to tell which way the eyes are turned when a prism of as much as 20 prism diopters is placed base out before the eyes clearly indicate absence of a proprioceptive sense. The speed with which fine eye movements are made also indicates that some other mechanism of control must be active.—M. R. Stoll (Mass. Eye & Ear Infirmary).

4820. Kock, W. E. Certain subjective phenomena accompanying a frequency vibrato. *J. acoust. Soc. Amer.*, 1936, 8, 23-25.—A device was used to generate an intensity and a frequency vibrato in such a way that the observer could switch rapidly from one to the other. From the results reported it appears that the subjective intensity vibrato which accompanies a frequency vibrato is not due to the subjective comparison with a pure intensity vibrato and is not due to the change of subjective intensity with pitch. It is more likely due to the rhythmic sense of the listener imparting an accent to a particular point in the vibrato cycle.—S. S. Stevens (Harvard).

4821. Levine, H. A., & Dallenbach, K. M. Minor studies from the Psychological Laboratory of Cornell University. LXXXII. Adaptation of cold spots under continuous and intermittent stimulation. *Amer. J. Psychol.*, 1936, 48, 490-497.—The problem of the present study was to determine whether a single cold spot adapts completely under a stimulus temperature that is markedly below physiological zero. Stimulation was punctiform, and was on an area 3 x 5 cm. on S's left forearm. The temperature of the stimulus varied from 8.5° to 17° C., but was fairly constant during one experimental period. The spots were selected and marked at the beginning of the experimental hour. By the continuous method the stimulator was applied to the spot and held there until S reported complete adaptation. By the intermittent method the stimulator was held on the spot for 1 sec. and then off for 3 sec. until S reported thermal indifference at three successive stimulations. Under all conditions complete adaptation resulted. Its normal course is discontinuous; the intensity fades gradually and rises abruptly several times before adaptation is complete. The time required for complete adaptation varied from 20.6 to 49.7 sec. for different S's by the continuous method and from 20.2 to 36.1 sec. by the intermittent method. The implication is that adaptation time is not conditioned

by the stimulus temperature, though the results are too scanty for assurance upon this point. The spots of a low-intensity level adapted more quickly than those of a high-intensity level.—D. E. Johannsen (Skidmore).

4822. Lewis, D., & Cowan, M. The influence of intensity on the pitch of violin and 'cello tones. *J. acoust. Soc. Amer.*, 1936, 8, 20-22.—"Three independent investigators (Zurmühl, Stevens and Fletcher) have recently shown that significant changes in the pitch of certain pure tones accompany changes in their intensity, the amount of change depending upon both frequency and intensity. The question naturally arises as to whether the pitch of complex musical tones is similarly related to intensity. The present paper is the report of an investigation which was undertaken to answer this question in so far as it relates to violin and 'cello tones. The results are not entirely unequivocal, but they tend to show that intensity has no measurable effect on the pitch of the tones studied. Intensity may affect the pitch of these tones, but if it does the pitch-intensity relationship here is basically different from that operative in the case of pure tones; and this is unlikely."—S. S. Stevens (Harvard).

4823. Marshall, D. Changes in refraction following operation for strabismus. *Arch. Ophthal., Chicago*, 1936, 15, 1020-1031.—Reports changes in refraction in the eyes of 55 patients operated for squint. Changes of 0.5 diopter or more in the vertical or horizontal meridians or in both were found in 60% of the operated eyes and in 41% of the untouched eyes. Changes were more frequently associated with corrections of 20° or more of squint and with lengthening operations where the curvature of the vertical meridian usually increased and that of the horizontal decreased. Change in the non-operated eye tends to be similar in type to that in the operated eye and is explained by the fact that the change in muscle balance affects the tension on both eyes. It was not demonstrated that these changes are due to changes in corneal curvature, but this is the usual and apparently warranted assumption. A control group subjected to repeated refractions under similar conditions failed to show any change in 87% of the eyes and none showed a change of more than 0.5 diopter.—M. R. Stoll (Mass. Eye & Ear Infirmary).

4824. Möller-Ladekarl, P. Über Farbendiffektion bei Normalen und Farbenblindem. (Color discrimination in the normal and color-blind.) Copenhagen: Nyt Nordisk Forlag, 1934. Pp. 128.—R. R. Willoughby (Brown).

4825. Ohwaki, Y. [Experimental studies on the appearance of presentation (III).] *Jap. J. Psychol.*, 1935, 10, 839-859.—R. R. Willoughby (Brown).

4826. Peckham, R. H. An objective study of binocular vision. *Amer. J. Psychol.*, 1936, 48, 474-479.—The problem of the present study was to determine to what extent binocular fusion involves the stimulation of corresponding points. A modified

telestereoscope was used. The stereoscopic pictures were placed in the instrument and moved about until S reported fusion (the phoric position). 105 S's were observed while undergoing the phoric test, i.e., moving one picture out horizontally until S reported diplopia. The results show that fusion may be reported when the images stimulate points failing to be anatomically corresponding by as much as 10° in the extreme. It is pointed out that no conclusions can be drawn from investigations of the relation between convergence and accommodation unless measurements are included of eye movements, and that the results of studies which have been made under the assumption that binocular fusion is evidence of the stimulation of corresponding retinal points are open to question. The author favors a theory that the state of convergence in binocular fixation may be accomplished by two separate and independent monocular fixations.—D. E. Johannsen (Skidmore).

4827. Pitt, F. H. G. Reports of the committee upon the physiology of vision. XIV. Characteristics of dichromatic vision. [Appendix II. Some further theoretical considerations, by W. D. Wright.] *Spec. Rep. Ser. med. Res. Coun., Lond.*, 1935, Ser. 200, 3-58.—(*Biol. Abstr.* X: 8246).

4828. Podesta, H. Wandtafel zur Prüfung des Farbensinnes und Erkennung der Farbenuntüchtigkeit. (Wall charts for testing color vision and recognizing color deficiency.) (2nd ed.) Hamburg: Friederichsen, de Gruyter, 1936. Pp. 12.—R. R. Willoughby (Brown).

4829. Preston, M. G. Contrast effects and the psychophysical judgments. *Amer. J. Psychol.*, 1936, 48, 389-402.—The present problem was undertaken to throw light upon the basic reason for the change in psychophysical judgments as a function of the position within the series. The 5 S's were presented with 14 pairs of weights, all objectively weighing 100 gm. S was required to judge the second weight as heavier, equal to, or lighter than the first in the pair. The results were tabulated so as to show the ratio of the difference between the expected and the observed number of judgment sequences to the standard error of the expected frequency. It was found that except for one S, the immediate repetition of the judgments *equal* and *greater* was consistently avoided, and two of the S's also consistently avoid repeating *lighter*. A similar avoidance of repetition occurs even through 1, 2, and 3 succeeding judgments, but it becomes less marked and does not occur with all S's. The avoidance of repetition is most marked for the judgment *equal*. The significance of these results from a theoretical point of view is considered, and it is concluded that the contrast effects found cannot be explained entirely in terms of the stimulus conditions, and that the most significant factor is probably an attitude of S against repeating judgments.—D. E. Johannsen (Skidmore).

4830. Rubin, E. Taste. *Brit. J. Psychol.*, 1936, 27, 74-85.—Taste arises from the combined function-

ing of several sorts of sense organs, gustatory (in the mouth), olfactory (in the nose), tactile (in the mouth), auditory and visual. The characteristic taste of a given substance is determined by the particular sequence or pattern of sensations from these organs.—*M. D. Vernon* (Cambridge, England).

4831. Rubin, M. A. *Adaptation of cutaneous tactile receptors. IV. Electrolyte content of frog skin.* *J. gen. Physiol.*, 1936, 19, 935-939.—The electrolyte content of frog's skin is determined and the probable significance of the ions in terms of the potassium hypothesis of adaptation is briefly discussed.—*M. A. Rubin* (Clark).

4832. Ruckmick, C. A. *A critical review of the field of audition.* *Psychol. Bull.*, 1936, 33, 407-431.—In a highly damped system such as the ear, the hydrodynamic principles known under simpler conditions are not directly applicable. The possibility of further complication is present in view of the reflex operations of the tensor tympani and stapedius muscles. Results obtained by means of electric potentials should be carefully checked against psychological, physiological, and physical concepts. In case of wasting or progressive diseases, unusual care must be exercised in the interpretation of post mortem findings. The problem of sound localization is still in a somewhat confused state, but the importance of intensity differences is again emerging as a deciding factor, especially with tones below 8000~. Evidence supports a modified form of resonance theory, except for the ranges above 8000~, where some form of volley theory is applicable. Bibliography of 44 titles.—*R. H. Brown* (Yankton).

4833. Ruff, O. *Die Farbenblindheit in ihrer Bedeutung für Schule und Beruf.* (Color blindness and its significance for school and occupation.) *Gesundh. u. Erzieh.*, 1936, 49, 60-65.—The color blind are divided into the blue-yellow blind and the red-green blind. A distinction is made between "color proficient," "color weak," and color blind. Total color blindness is extremely rare. Persons suffering from this ailment see the spectrum as a gray band. About 6% of men are green-weak, about 2% green-blind, and about 2% red-blind. Those who are color weak have an increased sensitivity to brightness. The real difficulty lies in identifying the border cases, for such persons not only have a subnormal color sensitivity but generally manifest other deviations from the norm, such as requiring a longer period of observation before the precise color is "registered" or a desire for thickly applied colors; all are a menace in practical life, especially in traffic. Color perception tests should be given early, at all events at the time of vocational guidance.—*S. W. Downs* (Berkeley, Calif.)

4834. Sasame, A., & Kido, M. [On the threshold of color expression.] *Jap. J. Psychol.*, 1936, 11, 194-206.—Names of colors are so few in comparison with the discriminable nuances of color that we usually express an intermediate color by a name coming from a combination of two colors or by the name of a thing. The variety of expression in these

cases was examined from the viewpoint of age, sex and culture.—*R. Kuroda* (Keijo).

4835. Schoen, Z. J., & Wallace, S. R. *Ocular dominance. Its independence of retinal events.* *Arch. Ophthal.*, Chicago, 1936, 15, 890-897.—The authors review findings concerning ocular dominance and attempt to discover whether dominance depends upon retinal differences or upon more complex aspects of cortical or sub-cortical equilibrium. Determination of the critical flicker frequencies for the two eyes of eight observers showed no reliable differences between the two eyes. This seems to indicate that retinal asymmetry is not responsible for ocular dominance.—*M. R. Stoll* (Mass. Eye & Ear Infirmary).

4836. Snow, W. B. *Change of pitch with loudness at low frequencies.* *J. acoust. Soc. Amer.*, 1936, 8, 14-19.—"Changes in pitch which result from changes in the loudness of low frequency tones were investigated for several frequencies between 75 and 1000 c.p.s. with a crew of 9 observers. The loudness levels covered the range 20 to 120, and both telephone receivers and a loudspeaker were used as sound sources. Fletcher's pitch standard, a pure tone of loudness level 40, was employed. All consistent judgments gave pitch shifts downward with increasing loudness, but large differences between individuals were found. A set of contours of equal loudness level, plotted on coordinates frequency and pitch change in percent, is given. These curves show a pitch change small at 1000 cycles, increasing to maximum at a low frequency and decreasing for still lower frequencies. The frequency of greatest shift increased from about 100 cycles at small loudness to about 200 at loudness level 120."—*S. S. Stevens* (Harvard).

4837. Stephens, J. M. *The perception of small differences as affected by self interest.* *Amer. J. Psychol.*, 1936, 48, 480-484.—The problem of the present study was to determine whether *S* will interpret an ambiguous stimulus to his own advantage, when he is perfectly aware that an error will be found by *E*. The *S*'s were 34 students in educational psychology. The material consisted in a true-false examination. Under the question sheet was a carbon and a second sheet. *S* marked the questions by encircling a *T* or an *F* in front of each question, leaving the carbon and second sheet in place. He handed in the question sheet and was given an answer sheet, marked in such a way that some of the answers were easily determinable as right or wrong, while others were very difficult. *S* was asked to score the carbon copy of his answers from the answer sheet. A second group of students was asked to compare sheets 2 and 3, marking the sign on sheet 2 most like the one given on sheet 3, without being told anything as to the significance of the instruction. Sheet 2, on which *S*'s carbon record was made, had pairs of rectangles with a short line making an angle of 27° and 51° with the base line at the right; the two angles alternated from right to left in the series of questions. Sheet 3 contained

one such symbol after each question number, but the angles formed were 27° , 31.5° , 37° , 43.5° , and 51° . It was found that the control group made few errors on the extremes, but was almost exactly divided on judging the 37° angle. With the experimental group, however, those students who had marked the 51° angle decided 77% of the time that 37° was more like 51° than like 27° ; those students who had marked the 27° angle, on the other hand, decided 64% of the time that 37° was more like 27° than like 51° . "From the results of the group as a whole we may conclude that when an S is asked to decide whether his response is right or wrong and when the key by which he judges his responses is ambiguous, then he tends to call his response correct."—D. E. Johannsen (Skidmore).

4838. Stevens, S. S., & Davis, H. Psychophysiological acoustics: pitch and loudness. *J. acoust. Soc. Amer.*, 1936, 8, 1-13.—Four correlations between psychological and physiological functions have been examined. "(1) Data previously reported show a fairly good correspondence of the threshold function of electric response (in the cochlea) and the psychological thresholds. (2) Pitch perception depends upon selective resonance of different portions of the basilar membrane, although an intense tone activates a large area. The positions of maximal sensitivity were determined by the effect of localized lesions of the cochlea upon the threshold for electric response. The resulting map agrees closely with the map derived from the integration of Shower and Biddulph's data on pitch discrimination. (3) The equal loudness contours were compared with the corresponding contours of intensity required to produce equal electric responses from the cochlea. (4) The loudness function of Churcher was compared with the relation between the intensity of a 1000-cycle tone and the magnitude of the electric response of the cochlea." The loudness function does not correspond to the function obtained by integration of the difference limens for loudness.—S. S. Stevens (Harvard).

4839. Stocker, F. Über Beziehungen zwischen Refraktion und Gehirnentwicklung. (Concerning the relation between refraction and cerebral development.) *v. Graefes Arch. Ophthal.*, 1934-35, 133, 131-137.—The development of the eyeball parallels the development of the brain. A greater degree of hypermetropia is correlated with a greater amount of mental debility.—H. A. Imus (Dartmouth Medical School).

4840. Takagi, K. [On the comparison of real size of objects.] *Jap. J. Psychol.*, 1936, 11, 1-19.—Two nickel-plated brass rods, about 50 mm. long, were placed at different distances and in various positions. Four cases of comparison are studied, (1) that in which the real size of two objects is compared under the instruction that the observer may change the given arrangement as he pleases, (2) that in which comparison is made from apparent size and change of arrangement is not permitted, and (3) and (4) in which the (1) and (2) conditions are

exchanged. From the subject's various attitudes—transposition of himself to objects and change of arrangement—the author concludes that the operation of comparison is governed by the dynamics of cerebral process.—R. Kuroda (Keijo).

4841. Travis, E. L., & Griffith, P. E. Electric current thresholds at audio-frequencies. *Amer. J. Psychol.*, 1936, 48, 422-433.—The present investigation studied the limens of 22 S's for alternating current, and the relation between the frequency of the current and fatigue, adaptation, and recovery. The stimulus limens were determined for frequencies between 50 and 10,000 cycles. In general, the higher the frequency the higher the limen, although between 50 and 200 the limens remain nearly constant. Adaptation occurred much more rapidly for the higher than for the lower frequencies, and took place more rapidly at the beginning than at the end of the adaptation period. Recovery occurred more rapidly for the higher than for the lower frequencies, and more rapidly at the beginning than at the end of the recovery period. An attempt was made to differentiate between adaptation and fatigue in producing the effects described above, and it was found that the part played by adaptation was a much more potent factor in producing the decline in sensation, and the share of the effect produced by fatigue becomes progressively less the higher the frequency.—D. E. Johannsen (Skidmore).

4842. Tron, E. Ein Beitrag zur Frage der optischen Grundlagen der Aniso- und Isometropie. (A contribution to the question of the optical bases of aniso- and isometropia.) *v. Graefes Arch. Ophthal.*, 1934-35, 133, 211-230.—Tron determined the optical elements of 22 cases of anisometropia and found that this condition can be the result of unequal refractive powers, unequal axial lengths, or a mixture of the two. The latter type was the most frequent.—H. A. Imus (Dartmouth Medical School).

4843. Turner, W. D. Defects of color vision: their vocational incidence and practical control; acquired defects. *Psychol. Bull.*, 1936, 33, 448-464.—In this article, the first of a series reviewing the literature on defects of color vision for the period from 1923 to 1935, the writer summarizes the findings of 166 investigations of vocational incidence, control by tests, control by signal designs, control by direct treatment and accessory filters, and acquired defects.—R. H. Brown (Yankton).

4844. Verhoeff, F. H. Kinetic test for stereoscopic vision. *Arch. Ophthal.*, Chicago, 1936, 15, 833-839.—Two figures drawn in strong monocular perspective and representing a box which is smaller at the distal end are depicted on transparent film or glass. One is movable from side to side. In the center of the fixed box appears a black ball with a hole in the center; back of the other box a solid black ball is similarly represented on a separate movable film. With stereopsis, movement of one box sideways gives rise to apparent motion forward and backward when the figures are suitably mounted in a stereoscope or amblyoscope. If the boxes remain stationary,

sideways motion of the solid ball produces apparent movement forward and backward of the ball with a hole in it (the hole having high attention value). Use of actual three-dimensional figures enhances this effect. The test succeeds where acuity is very low—as little as 6-200. The apparently moving object appears to become smaller as it approaches and to increase in size as it recedes, indicating perfect correlation between apparent size and apparent distance. Convergence is obviously not essential to stereopsis, since mere disparateness of the retinal images produces the effects observed in this test, but convergence tends to follow apparent approach of the observed figure. Other recorded observations are not discussed in detail.—*M. R. Stoll* (Mass. Eye & Ear Infirmary).

4845. Washburn, M. F., & Verhoeff, F. H. Correspondence. A new theory of binocular vision. *Arch. Ophthal.*, Chicago, 1936, 15, 1117-1118.—Concerns the part played by retinal rivalry in stereopsis.—*M. R. Stoll* (Mass. Eye & Ear Infirmary).

4846. Zigler, M. J. Functional relationships in tactual and proprioceptive systems. *Psychol. Bull.*, 1936, 33, 432-447.—The qualitative approach is being replaced by a functional analysis of the relationships between sensory processes and stimulus variables. There is a linear relationship between adaptation time to pressure and amount of stimulus per unit area; adaptation time is much briefer by the oscillographic technique than by verbal report. The average error of tactual localization is independent of the amount of the stimulus. Comparisons of the magnitude of the average error of localization with the simultaneous and successive two-point limens indicate two overlapping excitatory processes. The Weber fraction decreases at first rapidly and then slowly, and finally tends to increase. Crozier and Pincus have shown a functional relationship between slope and progression angle of young rats on an inclined plane. Studies on the human have yielded less exact functional relationships. Work on the problem of differentiation of qualities in tactual and proprioceptive systems is reviewed. Bibliography of 42 titles.—*R. H. Brown* (Yankton).

[See also abstracts 4764, 4766, 4767, 4770, 4777, 4785, 4793, 4859, 4902, 4946, 4983, 5013, 5073, 5118, 5193.]

FEELING AND EMOTION

4847. Susukita, T. Über die Entwicklung des Gefühls beim Schulkinde. (On the development of feeling in school children.) *Tohoku psychol. Folia*, 1936, 4, 1-16.—A questionnaire was used. The subjects were 1192 children of a primary school. Results: (1) there are more words expressing unpleasant feelings than words expressing pleasant feelings; (2) the discrimination of unpleasant feelings is, therefore, finer than the discrimination of pleasant feelings; (3) the feelings of the children differentiate gradually as the school year progresses; in a word, they change from simple feeling to various sentiments.—*T. Susukita* (Sendai).

4848. Weber, H. An approach to the problem of fear in children. *J. ment. Sci.*, 1936, 82, 136-147.—For man as for many animals, fear has a survival value. A comparative study of the normal, physiological fears of animals, primitive man, and children suggests that we should apply Lloyd Morgan's canon in handling children's fears. If we view them in their proper perspective instead of reading into them interpretations drawn from the study of pathological fears in adults, we shall be fostering healthy mental development rather than stimulating neurotic tendencies or laying a basis for ill health and unhappiness in maturity.—*C. J. Herrick* (Pennsylvania).

[See also abstract 4862.]

ATTENTION, MEMORY AND THOUGHT

4849. Asakura, S. Danjo ni okeru renso no sai. (Sex difference in association.) *Kyoiku Shiken Kenkyu*, 1935, 10, 664-680.—More verbs and adjectives and fewer nouns are found in girls' reaction words than in boys'. Active, dynamic, social, objective, abstract, scientific, self-possessed and cynical are the words which best characterize the latter.—*R. Kuroda* (Keijo).

4850. Blonski, P. P. Razvitiye myshleniya shkolnika. (The development of thinking in the school child.) Moscow: Uchpedgiz, 1935. Pp. 126.—The children were asked to write down any 25 words that occurred to them. The younger children (8-9 years old) gave mostly names of people they knew—friends, siblings; the next age levels favored the objects of their immediate surroundings; with puberty the abstract words appeared which were found to predominate in adults. On being asked to write anything they wished on certain topics, the youngest children wrote of the concrete actions of the objects, of happenings they had witnessed; the older concentrated on the characteristics of the objects themselves, used many notions derived from the text books, and consequently showed a greater uniformity in their concepts; however, the individual differences again became prominent at puberty with the appearance of the social and esthetic viewpoints. Other aspects of thinking that are discussed are understanding and explaining, reasoning and the acquisition of new material. With age thinking acquires wider contents, becomes more abstract, yet at the same time more detailed and disciplined. During the first school years the prevalent intellectual activity is the observation of objects of the outside world, later the rapidly growing memory function comes to the fore; at puberty thinking proper sets in with the development of logical argumentation and proof: up to then proof consists merely in demonstration and in quoting authority. At first logical argumentation concerns only concrete situations; not until adolescence does thinking reach the level of abstraction and generalization.—*E. Hanfmann* (Worcester State Hospital).

4851. Chou, S. K., Chen, H. P., & Chao, W. H. [Sex differences in syllogistic judgment.] Chung

Hua educ. Rev., 1935, 23, No. 5, 41-47.—A Chinese version of Thurstone's Reasoning Test B was applied individually to a group of college students, 27 boys being tested by a male and 27 girls by a female experimenter. The results showed that the boys took an average of 1.47 secs. and the girls 1.28 secs. to judge a problem. In 32 problems the boys made an average of 4 errors and the girls 5.9 errors. These two differences were not reliable, since the critical ratio for the time difference was found to be only 1.28 and that for the error difference 1.65. The only sex difference seemed to lie in the fact that the boys were more liable to judge correct conclusions as wrong ones (63% of 108 cases), while the girls were more liable to judge wrong conclusions as correct ones (57% of 158 cases). The authors also attempted to explain this slight sex difference in syllogistic judgment by the following arguments, viz., (1) the sex difference between the experimenter and the subjects had been controlled, (2) the strict statistical treatment had lessened the reliability of the sex difference found, and (3) Thurstone's Reasoning Test B is rather too simple to differentiate between the sexes among college students.—C.-F. Wu (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

4852. Gillette, A. L. Learning and retention. *Arch. Psychol.*, N. Y., 1936, No. 198. Pp. 56.—The problem was the study of the relationship between the learning of visually presented paired associates and the retention for a definite interval of time of those pairs which have been learned completely. Time to learn the material and amount of material learned were factors involved. In the equal-amount-learned method, the amount learned was the same for all 54 subjects, time varying. Correlations of number of trials to learn and relearn were small but positive, implying that the fast learner is the better learner and hence may have better retention. The method of equal opportunity to learn gave the same time to all subjects (149). Correlations of number of pairs learned with number of pairs lost in 48 hours indicate that the fast learner loses more than the slow learner, but since he has learned more this is not conclusive. The method of adjusted learning, in which all subjects learn the same amount and no one has an opportunity to overlearn, gives clear evidence that the fast learner retains more of the material for the same length of time in terms of (1) number of pairs retained, (2) proportion of pairs retained, (3) number of trials needed to relearn. The methods do not contradict each other, and they indicate clearly that the fast learner is the better retainer.—E. M. Achilles (Columbia).

4853. Hall, V. The effects of time interval on recall. *Brit. J. Psychol.*, 1936, 27, 41-50.—Meaningful and meaningless visual material (pictures of real objects and diagrams) were presented to boys and girls of 11.0 to 12.0 and adults for immediate and delayed recall by reproduction. It was found that changes in the reproduction of diagrams appeared suddenly; of pictures, more gradually. Diagrams changed toward more symmetrical figures; with

pictures, conceptual knowledge appeared strongly to influence both the original observation and the later recall. There was a positive relation between intelligence and accuracy of recall, especially of material interesting to the children, but none between perseveration and accuracy of recall.—M. D. Vernon (Cambridge, England).

4854. Kuraishi, S. [Experiments on the so-called "time to call objects by name" and "time to read their written names."] *Jap. J. Psychol.*, 1936, 11, 145-156.—According to the studies of W. Brown (Practice in associating color-names with colors, *Psychol. Rev.*, 1915, 22, 45-57) and G. Heymans with H. J. F. W. Brugmans (Versuche über Benennungs- und Lesezeiten, *Z. Psychol.*, 1917, 77, 92-110), to call a number of colors by name requires more time than to read their names upon the cards. The paper reports an experiment on this problem. The results are as follows: in case of a few stimuli the above-mentioned conclusion is verified, but as the number of stimuli increases the relation of time between naming and reading is reversed.—R. Kuroda (Keijo).

4855. Kuroda, R. Experimental studies on "Kan." I. Polarization of psychic activities. *Acta psychol. Keijo*, 1935, 2, 99-123.—The paper deals with the questions on one hand whether it is possible to verify the hypothesis that anyone can perform several things at a time, and on the other hand how it is compatible with the established principle which demands one thing at a time. The tasks which the observers were required to do at the same time were increased until at last four different kinds of activities (discriminative throw of steel balls differing about one gram in weight into small holes in the dark with the left hand, discriminative finger reaction with the right hand to visual stimuli, mental arithmetic, and retention of unrelated words orally presented by the experimenter) could be performed simultaneously. All three observers were able to do the task with very good success. A tentative theory of polarization was advanced to explain these results.—R. Kuroda (Keijo).

4856. Matsumoto, H. [A study of the process of multiplication.] *Jap. J. Psychol.*, 1936, 11, 157-193.—Several dishes of beans with equal numbers were presented to 15 boys and girls (7-8 years old), who were asked to tell the total number of beans. The process of solution is classified genetically into four stages, viz., counting, adding, doubling and multiplying. The author emphasizes the role of the multiplication table in the operation of multiplication.—R. Kuroda (Keijo).

4857. Maxwell, R. S. Remembering in different social groups. *Brit. J. Psychol.*, 1936, 27, 30-40.—A story containing a number of incongruous items was presented for oral serial reproduction to a number of different social groups of adults and adolescents. In general the mistakes and incongruities tended to be omitted or corrected. The material underwent much shortening and rationalization, but the type of explanations which remained and the finally

surviving detail indicated fairly widespread specialized interests of a social order.—*M. D. Vernon* (Cambridge, England).

4858. Nanking Exp. Elem. School. [An experimental study of the trends of memory change.] *Kiangsu elem. Sch. Teach.*, 1935, 2, 936-971.—This study dealt with the qualitative aspect of memory. The problems were: Which part of the material has been changed in memory? Which part of material has been forgotten? Is there a general retention limit for any kind of material? Three kinds of material were used, including printed words (9 frequently used and 9 rarely used characters, 4 phrases and 4 non-phrases), pictures (representing 4 frequently seen and 4 infrequently seen objects), and conversation (1 story consisting of a definite number of units). The printed words and pictures were presented by means of a tachistoscope, the length of each exposure being $\frac{1}{10}$ sec., in successive order till all were memorized. The story was told orally till the children could completely remember it. In all cases the subjects were retested 1, 3, 7, and 15 weeks after learning, both recall and recognition methods being employed to measure the amount of retention. 42 pupils of elementary grade VIA, divided into 2 equal groups, were tested for the trend of memory change of the words, one group with complete words and phrases and another with incomplete ones which lack some constituent parts; 40 pupils of grade IVA, also divided into 2 equal groups, were tested for that of the pictures, one group with complete pictures and another with incomplete ones; and 3 pupils of grade IIB were tested for that of a story. The results showed that frequently used complete words were more easily learned and better retained than incomplete ones. Rarely used complete words were difficult to learn but had a larger amount of retention, while incomplete words and phrases especially had a marked superiority in retention. Children tended to substitute words of similar pronunciation for those forgotten. The forgetting amount for the form of the pictures representing either frequently seen or infrequently seen objects was smaller than that for the content or organization. The content of the pictures was difficult to learn and not easily retained. The incomplete pictures were not so well retained as the complete ones. Serial material was advantageous to children's memory; single words were easily forgotten, while phrases were not. In memorizing a story scattered material was easily forgotten, while serial material which formed into natural units was very easily retained. The testing materials used in the study are given in full at the end of the paper.—*C.-F. Wu* (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

4859. Ohwaki, Y., Kaiwa, T., & Kaketa, K. Psychologisch-medizinische Untersuchung der eidetischen Anlage japanischer Jugendlicher. II. (Psychomedical investigation on the eidetic disposition among Japanese children.) *Tohoku psychol. Folia*, 1936, 4, 17-50.—94% of 105 deaf mutes are found to be eidetic individuals, in comparison with 74%

of normal children. The relation between the eidetic disposition and the degree and period of deafness is not clear. Their after-image is exaggerated, and is very changeable according to the change of projection distance. We can observe in 66% of deaf mutes at least symptoms of the basedowoid and tetanoid constitutional types, in comparison with 30% in normal children.—*Y. Ohwaki* (Sendai).

4860. Oldfield, R. C. The learning of logically connected material. *Brit. J. Psychol.*, 1936, 27, 4-10.—Four sets of material consisting of lists of family relationships were learned by the paired associates method (e.g. *Henry; Stephen's grandfather*). Logical connections and inconsistencies between consecutive relationships were introduced into some sets. It was found that such connections retarded learning, and inconsistencies retarded it still more. It did not appear that insight into complete schemes of relationship (i.e. family trees) played any part.—*M. D. Vernon* (Cambridge, England).

4861. Sagara, M. [Homogeneity, heterogeneity of process and trace in the reproduction.] *Jap. J. Psychol.*, 1936, 11, 123-144.—The so-called "retroactive inhibition" which had been studied by W. Köhler and H. v. Restorff recently was investigated by the author. When a series of stimuli consisting of different colors is followed by a series of color names, the objects to be borne in mind being thus homogeneous, percentage of recollection falls lower than is the case when the fore- and after-stimuli are series of colors and figures, i.e., when they are heterogeneous. The same relation was found between figures and their names and between figures and numerals. The author stands entirely on the side of Köhler's psychophysics.—*R. Kuroda* (Keijo).

4862. Susukita, T. Über das Gedächtnis für lust- und unlustbetonte Erlebnisse im Alltagsleben. (On memory for pleasant and unpleasant experiences in everyday life.) *Tohoku psychol. Folia*, 1935, 3, 187-204.—A questionnaire was used. The subjects were 2051 children of three primary schools (in a village, in a small town, and in a large city). Results: (1) memory-pessimism increases as the school year progresses; (2) boys are more memory-optimistic than girls; (3) the higher the culture of the environment, the more memory-pessimistic the children are; (4) finally, the author considers the relation between development and environment.—*T. Susukita* (Sendai).

4863. Yong, T. L'image dans ses rapports avec la sensation et la perception. (Image in its relation to sensation and perception.) *Rev. Univ. Franco-Chin.*, Pékin, 1935, 7, No. 2, 1-66.—This paper is more discursive than descriptive. The author rejects the theory of psychological atomism which considers image as a static state and as a spontaneous re-viviscence of an original sensation, and adopts that of mental dynamism. Mental images do not juxtapose as distinct entities one at the side of another, each having its own autonomy. On the contrary, they superpose one on another and blend together when they become numerous, and for this reason

each image borrows from analogous ones which precede it a part of their constituent elements and yields in its turn something of its own to those which come after it. Out of this perpetual exchange come our images, forming a series in which all adhere and blend in a general whole which is our own personality. Sensations and images collaborate to form perceptions; sensations alone, in their crude state, have no significance; images alone, in their pure state, are only the phantoms of perception. Sensations evoke images, and images complete them. Often the two meet in an antagonism; thus sensations verify and rectify images and sometimes reduce them to nothing. There are no images but acts of imagination, just as in the adult person there are no sensations but acts of perception. Imagination is a mental process similar to that of perception. Just as sensation is an abstraction of perception, image is only a transverse section of imagination. In order to understand imagination in its true nature, one may compare it to perception but not to sensation.—C.-F. Wu (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

[See also abstracts 4892, 4970, 4997, 5137, 5179, 5187, 5190.]

NERVOUS SYSTEM

4864. Altenburger, H. Vegetative Regulation cerebrospinaler Funktionen. (Vegetative regulation of cerebrospinal functions.) *Z. ges. Neurol. Psychiat.*, 1933, 144, 338-387.—(*Biol. Abstr.* X: 8254).

4865. Anderson, F. M., & Lindsley, D. B. Action potentials from intercostal muscles before and after unilateral pneumectomy. *J. Lab. clin. Med.*, 1935, 20, 623-628.—(*Biol. Abstr.* X: 8255).

4866. [Anon.] Fluctuations of electrical potential in the cortex of the brain. *Sci. Mon.*, N. Y., 1936, 43, 95-96.—The human electroencephalogram has recently been studied at Harvard Medical School by Hallowell Davis from the point of view of both normal and epileptic individuals. Preliminary experiments confirm the previous observations by others that fluctuations in electrical potential of as much as 50 microvolts can be recorded from the human head with skull and scalp intact. The commonest recognizable pattern ("alpha" rhythm) is a series of regular waves at a frequency of about 10 per second. Other waves of various amplitudes sometimes at regular frequencies of about 20 to 30 per second and sometimes quite irregular also appear ("beta" waves). In general the pattern of activity taken over a period of time from a given area of the skull is characteristic of a given individual. Epilepsy shows very characteristic patterns; petit mal yields a very regular series of large waves, grand mal a pattern of intense electrical activity coming gradually to a climax and then subsiding.—O. P. Lester (Buffalo).

4867. Bartley, S. H. Temporal and spatial summation of peripheral impulses with activity of the brain. *Amer. J. Physiol.*, 1936, 116, 8.—"Cortical responses to paired, triple and trains of rapidly repeated electric shocks to the optic nerve indicate that the

activity of any element or group of elements in the brain is rhythmic; that the period of the rhythm is very long (1/2 second) as compared to the cycle of events possible in nerve fibres; and that the cortex may respond to frequencies much greater than that represented by the afore mentioned rhythm. . . . When shocks are repeated at the rate of about 20 per second, there is a larger response to the first, and to only some of the others, till finally a small response appears to each stimulus. The course of events suggests that the final state of responding to each shock is one in which one group of elements responds to one shock and others to the succeeding ones till the first group has lost its refractoriness and the cycle of events is repeated."—T. W. Forbes (N. Y. Psychiatric Institute).

4868. Blair, H. A. Latent addition in muscle and nerve. *Amer. J. Physiol.*, 1936, 116, 11-12.—"Using as a representation of the local excitatory process the differential equation,

$$\frac{dp}{dt} = KV - kp$$

where p is the excitatory state, V is the stimulus, and K and k are constants, the subsidence of the excitatory state following an inadequate stimulus is given by

$$\frac{dp}{dt} = -k'p$$

the prime being used to allow for the possibility that the subsidence is different with the current off than on." By studying the effect of latent addition of 2 rectangular stimuli the necessary constants can be determined. The excitatory state subsides to $1/e$ of its initial value in 20 and 0.2 milliseconds respectively. "In both cases the subsidence is much faster, about 2.3 times in muscle, and 1.7 times in nerve, with the current off than on."—T. W. Forbes (N. Y. Psychiatric Institute).

4869. Blair, H. A. On the quantity of electricity and the energy in electrical stimulation. *J. gen. Physiol.*, 1936, 19, 951-965.—The author shows that the relation between the quantity of electricity and the energy described by Weiss's and Hoorweg's laws is too simple to fit the experimental data. He explains the data by the hypothesis that "the rate of growth of the excitatory state varies directly as the instantaneous strength of the stimulus, that there is a simultaneous subsidence of the excitatory state at a rate proportional to its magnitude, and that the threshold amount of the excitatory state is a constant decreased by an amount proportional to the strength of the stimulus at the utilization time."—M. A. Rubin (Clark).

4870. Bodo, R. C., & Benaglia, A. E. The effect of sympathin on blood sugar. *Amer. J. Physiol.*, 1936, 116, 12-13.—"For electrical stimulation faradic currents were used in strengths that did not cause visible contractions of the neighboring muscles. The stimulation lasted each time one minute and was repeated at 5 to 8 minute intervals usually ten times in an experiment. The results were: increase in heart rate, contraction of the denervated nictitating membrane and a rise in blood sugar. Electrical

stimulation of the pectoral muscles causing widespread contractions did not have any effect either on the nictitating membrane or on the blood sugar level. The second series of experiments were performed without anesthesia, the cats having been frightened with barking dogs or made to struggle on an animal board. In these experiments also, depending upon the degree and duration of the excitement and struggle respectively, a rise in blood sugar occurred. From these experiments it is concluded that sympathin, produced either by electrical stimulation of the sympathetic nerves or by emotional excitement and struggle, causes a rise in blood sugar."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4871. Bronk, D. W., Lewy, F. H., & Larrabee, M. G. The hypothalamic control of sympathetic rhythms. *Amer. J. Physiol.*, 1936, 116, 15-16.—"In a previous communication it has been shown that the impulses in sympathetic nerves, as for instance those from the stellate ganglia of the cat, are frequently grouped into rhythmically recurring waves which are sometimes synchronous with the heart beat or respiration. In order to investigate the role of afferent impulses from the viscera in the determination of this rhythmic activity and in the reflex control of the sympathetic centers we have stimulated alternatively the central end of the carotid sinus, aortic or vagus nerves with stimuli of various frequencies while recording the efferent impulses in a nerve from the stellate ganglion. . . . At lower stimulus frequencies than 30 to 40 per second the efferent impulses become grouped into large waves whose frequency corresponds to that of the stimulus. Thus the activity of the sympathetic nerve cells is set into resonance with the afferent impulses. . . . By means of concentric needle electrodes inserted into the region of the nucleus hypothalamicus lateralis we have observed potential waves resembling those found in the efferent sympathetic nerves. By electrical stimulation of this region we have been able to initiate corresponding volleys of efferent sympathetic impulses. And by stimulating those afferent nerves which, as stated above, drive the sympathetic motor cells we have produced rhythmic fluctuations of potential in the hypothalamus."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4872. Broekens, N. L., Ectors, L., & Gerard, R. W. Respiration of local brain regions. Technique and applications. *Amer. J. Physiol.*, 1936, 114, 16-17.—"With the Horsley-Clarke apparatus, a flat ended hypodermic needle (0.8 mm. inside diam., 18 gauge) can be inserted into a brain at known positions. With a close fitting stylus, extending above into an airtight greased sleeve, it is possible to 'suck' into the needle a solid plug of tissue of desired size from a determined position. The reverse maneuvers deposit the brain cylinder (usually up to 5 mm. long, weight 2 to 4 mgm.) into the closed end of a capillary of a Gerard-Hartline microrespirometer. . . . Q_{10} values for various portions of white matter ranged from 650 to 1800, for gray from 800 to 2500. Respiration of brain tissue is less when taken from deeply than from

lightly anesthetized animals. Specific regional depression by various anesthetics and other agents is being examined."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4873. Brookhart, J. M., Steffensen, E. H., & Gesell, R. The varieties of vagal sensory fibers which modify the respiratory act. *Amer. J. Physiol.*, 1936, 116, 17.—"If the gross acceleration from inflation during light anesthesia is produced by painful sensory stimulation, as it may well be, combined in some instances with irregular proprio-receptor discharge from excessive stretch of the lungs (Adrian), and if the minor acceleration from inflation during heavier anesthesia is due to an indirect circulatory effect, then our findings are at variance with those of Hammouda and Wilson. If there are two groups of proprioceptive fibers, one inhibitory and the other acceleratory, blocked out at different temperatures, we have been unable to repeat this differential cold block. Our results suggest that the progressive convergence of rates with graded cold block is produced by progressive reduction in the number of conducting vagal fibers. The acceleration at 12° C. requires further study."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4874. Brooks, C. McC., & Woolsey, C. N. Relation in the rabbit of electrically excitable areas of cortex to placing and hopping reactions. *Amer. J. Physiol.*, 1936, 114, 17-18.—"Following unilateral ablation of the electrically excitable areas (12 animals) contralateral contact placing reactions were absent. Placing in response to gross displacement of the leg and hopping reactions remained but were definitely deficient. These deficiencies were bilateral after removal of electrically excitable cortex of both hemispheres (8 animals). They were not increased by removal of any other portions of the cortex nor were they produced by destruction of electrically inexcitable areas (16 animal's). In four cases all cortex except the excitable area of one side was ablated. The legs opposite this intact cortical remnant showed normal placing and hopping reactions. These experiments show that in the rabbit, as in the other mammals mentioned, the cortical control of placing and hopping reactions is strictly localized."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4875. Burge, W. E., Wickwire, G. C., Orth, O. S., Neild, H. W., & Elhardt, W. P. A study of the electrical potential of the cerebral cortex in relation to anesthesia, consciousness and unconsciousness. *Amer. J. Physiol.*, 1936, 116, 19-20.—"The cortex of the brain of the deeply etherized dog was found to be electropositive to the sciatic nerve and the galvanometer indicated a flow of current from the positive brain to the negative sciatic nerve of 2 to 3 micro-amperes. Administration of the ether was then discontinued temporarily and as the dog came from under the anesthetic the cerebral cortex became progressively less electropositive and finally there was a reversal of polarity, the cerebral cortex becoming electronegative to the sciatic nerve; and

when the dog was practically out from under the anesthetic, the galvanometer indicated a flow of current of 2 to 3 micro-amperes from the positive sciatic nerve to the negative cerebral cortex. . . . It is known that active tissue is electronegative and inactive tissue electropositive. The electronegative cortex is active and conscious while the electropositive cortex is inactive and unconscious. Hence, it would seem that consciousness or unconsciousness is a matter of electrical potential of the cerebral cortex and this in turn is undoubtedly dependent upon the balance between the loss and gain of electric charges passing to and from the brain over the nerves."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4876. Cannon, W. B., & Rosenblueth, A. Sensitization of denervated structures. *Amer. J. Physiol.*, 1936, 116, 25.—"Does denervation of the ganglionic neurones render them likewise more sensitive? Experiments prove that these neurones are sensitized to appropriate doses of acetylcholine injected intravenously into eserized animals, as revealed by contraction of the nictitating membrane on the denervated side and not on the normal side, and by disappearance of the phenomenon when, after both ganglia have been removed, the same dose of acetylcholine is repeated."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4877. Chaffee, E. L., & Light, R. U. A method for the remote control of electrical stimulation of the nervous system. Supplementary notes. *Yale J. Biol. Med.*, 1934, 7, 83-128; 1935, 7, 441-450.—(*Biol. Abstr. X*: 8264).

4878. Clark, W. E. Functional localization in the thalamus and hypothalamus. *J. ment. Sci.*, 1936, 82, 99-118.—Drawing his data from gross anatomy, physiology, embryology, cyto-architectural studies, and clinical observations, the author reviews critically the available evidence as to the functions of the diencephalon, and suggests fields of research. Knowledge of the minute anatomy of this region has gone beyond our knowledge of functional localization. Eight diagrams and a bibliography are included.—*C. J. Herrick* (Pennsylvania).

4879. Cope, O. M., & Coombs, H. C. Electrocardiograms of the effects of acetylcholine after division of the vagi. *Amer. J. Physiol.*, 1936, 116, 30-31.—"The persistence of the P-waves in some cats argues again for quantitative variations in the distribution of 'cholinergic' fibers in the vagus."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4880. Cromer, S. P. The respiratory role of visceral afferent impulses which travel through the stellate ganglia and the vagi. *Amer. J. Physiol.*, 1936, 116, 33.—"From this we conclude that the impulses controlling respiratory rate travel mainly in the vagus nerves, while the impulses controlling amplitude travel mainly through those nerves which pass through the stellate ganglia."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4881. Davis, H., & Forbes, A. Chronaxie. *Physiol. Rev.*, 1936, 16, 407-442.—This review deals mainly with a consideration of the merits of chronaxie as

an empirical index of the time factor of excitation. The authors conclude that: (1) neither Lapicque's nor any other proposed formula adequately describes the phenomena of excitation; (2) strict isochronism, and the associated theory of curarization, are not substantiated by experimental data or by theoretical analysis; (3) the theory of isochronism, being based on an electrical mechanism of transmission, should not be applied to the autonomic nervous system, since autonomic effectors seem to be excited by a neurohumoral mechanism; (4) the attempt to explain central nervous function in terms of isochronism and subordination is purely speculative; (5) the clinical use of chronaxie should be put on an entirely empirical basis, and as much attention should be given to standardized determinations of the rheobase as to chronaxie itself.—*M. A. Rubin* (Clark).

4882. Davis, J. S., & Kitlowski, E. A. Regeneration of nerves in skin grafts and skin flaps. *Amer. J. Surg.*, 1934, 24, 501-545.—(*Biol. Abstr. X*: 8269).

4883. Ectors, L., & Brookens, N. L. A hemidecerebrated cat preparation, with observations. *Amer. J. Physiol.*, 1936, 116, 42.—*T. W. Forbes* (N. Y. Psychiatric Institute).

4884. Fowler, E. P., Jr., & Forbes, T. W. Depression of the cochlear response in order of frequency. *Amer. J. Physiol.*, 1936, 116, 51-52.—"Action currents were recorded in cats under barbiturate anesthesia from the round window using the degree of amplification necessary to bring the response to the observer's auditory threshold as a measure of intensity. The opposite ear was used as a control. Stimulus tones covered the range from approximately 256 to 10,000 cycles. Agents were applied to the round window membrane. Sodium chloride and calcium chloride, quinine dihydrochloride powder and pure glycerine produced a loss which appeared first in the higher tones and progressed regularly to the lower tones. . . . Dextrose crystals, 1 per cent sodium chloride and distilled water produced little or no loss. A microscopic examination of sections showed a progressive degeneration of hair cells. . . . Our results are therefore in line with a 'place' theory, as are reports by Davis et al., and by Culler, with other techniques."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4885. Frederico, H. La métachronose antidromique et la loi de l'irréciprocité de la conduction dans les synapses, chez les vertébrés. (Antidromic metachronosis and the law of irreversibility of conduction across the synapse in vertebrates.) *Arch. int. Physiol.*, 1933, 36, 400-417.—(*Biol. Abstr. X*: 8278).

4886. Fulton, J. F. Some functions of the cerebral cortex. *J. Mich. med. Soc.*, 1934, 33, 175-182; 234-243.—A report of experimental and clinical observations concerning cerebral functions. Those functions which deal with the superior intellectual processes are not localizable and must depend on the total organization of the brain; they are no more influenced by lesions in the frontal region than by destruction of other regions. Four regions are distinguished in

the frontal portion of the brain in monkeys and man; motor, premotor, ocular, and associative. Bilateral ablation of the frontal associative zones does not affect the postural mechanism or the reflexes; operated monkeys are agitated and easily distracted, have lost the memory for movements previously learned, and show a continuous amnesia which does not allow them to profit from experience, even when recent. Unilateral ablation in the motor area causes a flaccid paralysis; recuperation is possible due to the premotor area and the cortex of the other side. Destruction of the premotor area causes spastic paralysis and a diminution of the capacity to learn new movements. Bilateral destruction of the motor and premotor areas causes complete paralysis, with suppression of all movements of cortical origin.—*R. Goldman* (Worcester State Hospital).

4887. *Gerard, R. W., & Serota, H. Localized thermal changes in brain.* *Amer. J. Physiol.*, 1936, 116, 59.—"A needle thermojunction was placed by the instrument in the optic tract, lateral geniculate body or optic cortex, or in the cutaneous radiations of a cat, and current variations followed with a sensitive Zernicke galvanometer (1 mm. = 0.00075° C.). On illuminating the eyes (up to a minute), with the needle in the optic pathways a temperature rise begins within a minute and increases for about two more, the original baseline being regained in another four. The average increase is roughly 0.01° C. Pinching, stroking or massaging the feet is without effect for these needle positions but leads to similar thermal changes when the thermocouple is in the cutaneous paths. At some points both are effective, and action potential responses to both types of stimulus have also been obtained at a single setting. In three experiments, recording from the geniculate, light led to a temperature fall rather than rise. Clearly vasomotor effects are involved in these changes, although increased heat production by active neurones may also contribute."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4888. *Gibbs, F. A., Lennox, W. G., & Gibbs, E. L. Localizable features of the electrical activity of the brain in petit mal epilepsy.* *Amer. J. Physiol.*, 1936, 116, 61.—"The three-a-second wave and spike which was described as characteristic of petit mal epilepsy has now been seen in 34 patients with this disorder, in no normal subjects and in no patients suffering from other disorders. The spike is more evident if the active electrode is placed over the frontal region. With such a lead, the slow component has a dome-shaped top. Over the two motor areas the potential fluctuation is not so great, and the slow wave tends to have a peaked top. From the high occipital region a large irregular pyramid shaped wave is obtained and the spike appears only occasionally."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4889. *Graham, H. T., & Lorente de Nò, R. Rates of conduction in mammalian nerves in vivo.* *Amer. J. Physiol.*, 1936, 116, 63.—"In either decorticated or etherized rabbits the conduction rate does not vary from moment to moment, and remains quite

constant for several hours. Severing the nerve some distance above the point of stimulation has never been found to increase the rate of conduction. During the supernormal and subnormal periods with a degree of excitability as high as 12 per cent above or as low as 33 per cent below the resting level, no change in the conduction rate has been found greater than the limit of accuracy of the measurement of the records (1 to 2 per cent)."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4890. *Grundfest, H., & Gasser, H. S. Irritability of mammalian nerve after excitation.* *Amer. J. Physiol.*, 1936, 116, 67-68.—"Unexposed nerves with their natural circulation were tested in decerebrated cats at points other than the locus of the conditioning shocks, and the result of the stimulation was recorded electrically from a distant, exposed portion of the nerve. Maximal irritability occurred at 6 to 8 msec. (supernormality 2 to 15 per cent), and maximal subnormality (about 4 per cent) at 25 to 35 msec. Normal was reached after 50 to 80 msec. Conditioning with a tetanus depressed the irritability throughout the course of the curve of recovery, without changing its general form. A family of curves, showing increasing degrees of subnormality, was obtained as the frequency and duration of the conditioning tetanus were increased, the former variable being more important than the latter. The curves with subnormal initial maxima obtained after short tetani resembled the recovery curves of C fibers as they occur after single responses."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4891. *Hare, K. Postural reactions to electrical stimulation of the interior of the cerebellum in the cat and monkey.* *Amer. J. Physiol.*, 1936, 116, 69-70.—"The excitability of the interior of the cerebellum of normal monkeys and normal and decerebrated cats was demonstrated by electrical stimulation, using the Horsley-Clarke instrument. Cerebellar activation characteristically produced a biphasic response. The first phase was coincident with stimulation; the second occurred as a rebound posture lasting, in some cases, for as long as five minutes. A second stimulus during this rebound produced an inhibition of this posture and sometimes a contraction of the antagonists of the muscles active during the rebound . . . Cerebellar stimulation initiated three distinct types of response: (1) That involving eyes, head, trunk and tail and all four limbs. . . . (2) Reactions from the emboliform nucleus and the overlying white matter, generally confined to the ipsilateral forelimb. During stimulation the limb was relaxed and on rebound was flexed. (3) Scratching and grasping, usually with only the ipsilateral forelimb, during the stimulatory phase. The rostral end of the cerebellar nuclei and the vicinity of the superior cerebellar peduncle yield this response. This was observed only in the monkey."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4892. *Harlow, H. F. The neuro-physiological correlates of learning and intelligence.* *Psychol.*

Bull., 1936, 33, 479-525.—The importance of psychological theory in determining research on the neural correlates of higher mental processes is stressed. Data concerning the nature and laws of learning, the anatomical organization of the nervous system, and the effect of specific neural injury support theories assuming various forms of learning rather than theories postulating that all learning phenomena are of the same order. Encephalization and "corticalization" (shift of functional dominance from lower cerebral centers to the cerebral cortex with progressive development of central nervous system in animal scale) of motor and sensory functions and learning and intelligence are indicated by the increasing precision of localization of function as the animal order is ascended, by shift from bilateral to unilateral representation within a single hemisphere, and by hemispherical dominance of handedness, eyedness, and language functions in the human. The view of intelligence as the sum total of the activities of the various cortical centers with the higher synthesizing or associating centers mediating the most complicated mental processes is supported rather than theories of non-specificity, or dynamic theories, by available data and by fruitfulness of theories for future research. Bibliography of 117 titles.—R. H. Brown (Yankton).

4893. Hillenbrand, C. Studies on the mechanism of reflex acceleration of respiration through afferent fibers in the vagus nerve. *Amer. J. Physiol.*, 1936, 116, 75.—"Using dogs anesthetized with sodium barbital or nembutal, and with both vagi sectioned, we have confirmed the findings of Hammouda and Wilson (*J. Physiol.*, 1935, 85, 62), that continuous tetanization of the vagus below a cooled point may cause acceleration of respiration, instead of the stoppage or slowing seen when the nerve is left at room temperature; and that this reversal is not due to a simple reduction in frequency of impulses conducted. . . . These observations indicate that respiration can be accelerated by a periodic inhibition which cuts short inspiration, as the normal (inhibitory) inflation reflex does (Adrian, *J. Physiol.*, 1933, 79, 332). The slow breathing of vagotomized animals may therefore be attributed to the loss of this reflex."—T. W. Forbes (N. Y. Psychiatric Institute).

4894. Hines, M. The anterior border of the monkey's (*Macaca mulatta*) motor cortex and the production of spasticity. *Amer. J. Physiol.*, 1936, 116, 76.—"A strip of cortical tissue about 3 mm. in width, passing through the center of the superior precentral sulcus, duplicating the curvature of the central fissure, and extending on the medial surface to the sulcus callosus marginalis, was removed unilaterally and bilaterally in 7 monkeys. . . . Study of the surviving animals showed unmistakably, contralateral to the lesion, all classical signs of spasticity. . . . On the other hand, bilateral removal of the area originally delimited by Richter and Hines (1932) for the production of forced grasping (Brodmann's area 6) did not produce either motor impairment or any evidence of spasticity. However, the subsequent extension of this lesion to include the

anterior border of area 4 added to the condition of forced grasping, the signs of spasticity enumerated. . . . Consequently, forced grasping and spasticity are not integral parts of one syndrome of the pre-motor area. Rather, these two conditions represent a loss of important inhibitory functions having independent origin within the larger motor area of the cortex cerebri."—T. W. Forbes (N. Y. Psychiatric Institute).

4895. Hoagland, H. On the mechanism of the "Berger rhythm" in normal man and in general paretics. *Amer. J. Physiol.*, 1936, 116, 77-78.—"The Arrhenius equation was found to describe the data satisfactorily. Of the ten subjects, three were normal controls, one was a mentally normal multiple sclerosis out-patient, and six were general paretics. The normals, the multiple sclerosis patient, and the two least affected general paretics gave values of μ of $8,000 \pm$ calories. Two other general paretics gave $11,000 \pm$ calories and two gave $16,000 \pm$. This last value corresponds to an increase of from approximately 10 to 13 cycles per second for a rise of roughly 6° F. (3° C.). . . . The pathological condition in the paretics, therefore, appears to shift the pacemaker involved in respiration of the cells of the occipital cortex."—T. W. Forbes (N. Y. Psychiatric Institute).

4896. Holzer, W. Über Nervenreizung durch den Nervenstrom. (Excitation of nerve by the nerve action current.) *Pflüg. Arch. ges. Physiol.*, 1936, 237, 411-417.—The action current from an excised nerve cannot excite another excised nerve unless the potential from the first nerve is amplified about 1000 times. The author concludes, from these results, that *in vivo* the action current of one nerve is of sub-threshold value for the excitation of another adjacent nerve.—M. A. Rubin (Clark).

4897. Hovland, C. L. & Dusser de Barenne, J. G. Periodic fluctuations in motor response to uniform electrical stimulation of the cerebral cortex in monkeys. *Amer. J. Physiol.*, 1936, 116, 79.—"A focus of the precentral 'motor' arm area was electrically stimulated by impulses from a thyratron circuit; the stimulations, uniform with respect to duration, intensity, pulse frequency and pattern frequency, were applied at one minute intervals, rigidly controlled by a mechanical device. This interval avoids interference of 'facilitation' and 'extinction.' The motor responses were recorded isotonically on smoked paper. In both the anesthetized and the unanesthetized animals periodic fluctuations in amplitude and latency of response were present. The most characteristic period of these 'waves' was four minutes. . . . Search of the literature has disclosed evidence in previous researches of a four minute periodicity unmentioned by the investigators. Protocols of Pavlov show such variations in conditioned salivary responses. In the work of Galli and Gemelli on reaction times of human subjects and in that of Wiersma on sensory thresholds similar cycles are present. Experiments (unpublished) on galvanic skin reactions of human subjects to weak electric shocks have likewise revealed 'waves'

of four minutes' duration (Hovland)."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4898. **Howe, H. A., & Clark, D.** Spike action potentials from fiber tracts in the spinal cord of the cat. *Amer. J. Physiol.*, 1936, 116, 80.—"Leads were obtained through coaxial electrodes made with hypodermic needles and introduced into the substance of the spinal cord through drill holes at various levels in the cervical vertebrae. . . . In form and conduction velocity the potentials thus recorded were very similar to the spikes commonly observed in peripheral nerves. Further likeness was seen in a resistance to narcosis and asphyxia, greater in degree than holds for central nervous function in general. . . . Conduction velocities were measured between two sets of leads distant about 20 and 50 mm. respectively from the point of stimulus. Possible errors due to spread of stimulus were thus avoided. Calculated conduction velocities fell into two groups, at 64 to 80 meters per second, and 104-117 meters per second. The former were seen after shocks of medium strength. In one experiment a spike showing high amplitude and little temporal dispersion was correlated with the presence of the lead in the lateral column of the cord, and was thought to represent a pyramidal tract potential. The second group of more rapid potentials was obtained with stronger shocks. These were interpreted as the activity of larger fibers separated from direct contact with the stimulating electrodes by considerable tissue."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4899. **Hughes, J., McCouch, G. P., & Stewart, W. B.** Cord potentials in acute and chronic spinal cats. *Amer. J. Physiol.*, 1936, 116, 83-84.—"In the acutely spinal cat, if the ipsilateral shock falls during the negative component of the preceding contralateral volley, the reflex is frequently facilitated and associated with preservation and occasionally augmentation of the negative components. In the chronic spinal cat such early second shocks usually result in reflex inhibition, reduction of early, and abolition of late elements of the negative complex. In the chronic cat reflex inhibition and the positive component of the cord potential are deeper and longer and the negative components briefer than in the acute preparation. In both acute and chronic animals an ipsilateral volley during the positive component from a preceding contralateral volley permits less positivity to develop than obtains in either response alone. . . . These results accord well with the view recently advanced by Eccles in the case of the superior cervical ganglion that the slow potentials are generated in perikarya. They do not exclude an alternative explanation based upon axone potentials involving a selective distribution of large and small internuncial fibers."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4900. **Jacobsen, C. F., Taylor, F. V., & Haslerud, G. M.** Restitution of function after cortical injury in monkeys. *Amer. J. Physiol.*, 1936, 116, 85-86.—"Bilateral removal of motor and premotor areas of adult monkeys is followed by enduring paralysis;

voluntary movement is lost and postural adjustments are similar to those of thalamic preparations (Fulton and others). However, the same lesion in infant monkeys causes a paralysis of short duration, and the animal soon runs, climbs, and manipulates objects while the adult is completely helpless. There remains, however, in the infant some deficit of finely adapted movement of digits and postural abnormalities (Kennard). Exirpation of frontal association areas from adult animals causes total impairment of 'recall' (delayed response technique), although recognition memory is little disturbed. But in contrast to the considerable motor recovery in infant monkeys, there is no recovery after lesions of the association areas. Impairment of 'recall' is as severe as in adult subjects. It seems probable that this difference in recovery after motor and frontal area lesions arises from partial destruction of a dynamic system in the former instance, and complete removal in the latter. Thus the cortical motor area is only one component of the postural-locomotor system, and, under certain conditions, the remaining parts can carry on. Recovery is more complete when injury occurs before this cortical component has been functionally integrated with subcortical mechanisms."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4901. **Keller, A. D., Roy, R. S., & Chase, W. P.** Exirpation experiments which demonstrate that the neocerebellum is non-essential for any functions previously attributed to the cerebellum. *Amer. J. Physiol.*, 1936, 116, 89-90.—"The ablation of the neocerebellum unilaterally without precipitating symptoms might indicate bilateral control from the opposite hemisphere. Such is not the case, since a subsequent removal of the remaining neocortex has been accomplished without precipitating either crossed or homolateral disturbance. In the light of the existing view that the cerebellum acts as a whole, decortication of the neocerebellum without disturbance might indicate in turn the ability of the anterior and posterior lobes (of Ingvar) to carry the necessary function. If such were the case one would also expect that the lateral lobes would carry the necessary load following removal of the vermis. Such a reciprocal relationship does not exist because removal of the vermis as a whole or the medial nuclei alone leaving the lateral lobes and nuclei intact precipitates typical cerebellar symptoms."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4902. **Kemp, E. H., & Coppee, G.** The latency of electric responses in the auditory tracts of the brain stem. *Amer. J. Physiol.*, 1936, 116, 91-92.—"When concentric electrodes were inserted into the medulla (level of the eighth nerve) of cats under avertin anesthesia, we obtained responses which appeared about 2.3 msec. later than the cochlear response recorded from the round window. This latency decreased from about 2.8 msec. near threshold to 2.2 msec. with an increase of 40 db in the stimulating intensity. With further increase in intensity of stimulation, the latency remained constant. Stimulating frequencies up to 1800 per second were re-

produced. Between 1800 and 2700 the responses were largely asynchronous. When the electrodes were inserted at the level of the lateral lemniscus and inferior colliculus, responses were obtained which appeared about 4 msec. later than the cochlear response recorded at the round window. This latency decreased from about 4.5 msec. near threshold to about 3.7 msec. with an increase of 40 db in the stimulating intensity. With such electrode placements, stimulating frequencies up to 500 per second were reproduced synchronously. Alternation of activity in the individual fibers, shown by a marked decrease in amplitude of the response, began at about 500 per second. Above 1000 per second the responses were completely asynchronous. . . . From these facts we infer that only one synapse is interposed between the auditory nerve and the recording position in the medulla, while two synapses are interposed between the auditory nerve and the recording position at the level of the inferior colliculus."—*T. W. Forbes (N. Y. Psychiatric Institute).*

4903. Khvilivitskii, T. Ya. *Vegetativnaya reaktivnost pri rasstroistvakh bolevoi i termicheskoi chuvstvitelnosti.* (Vegetative reactions in syndromes characterized by disturbances of deep and thermic sensibility.) *Trud. Inst. Isuch. Mozga Bekht.*, 1936, 6, 105-114.—The author concludes from the study of 7 cases of syringomyelia and 2 each of hematomyelia and Brown-Sequard's syndrome that the vegetative reactions of the affected areas of skin decrease parallel with the intensity of the sensory disturbances. This may be due to functional block of the vegetative apparatus in the spinal cord as well as to lack of afferent impulses which normally maintain vegetative tone.—*M. E. Morse (Baltimore).*

4904. Khvilivitskii, T. Ya. *Vegetativnaya reaktivnost pri troficheeskikh rasstroistvakh.* (Vegetative reactions in trophic disturbances.) *Trud. Inst. Isuch. Mozga Bekht.*, 1936, 6, 115-123.—The following conclusions are drawn from 7 cases of syringomyelia, 3 of myopathy, and 2 of polymyelitic residua: Trophic affections of the muscles are accompanied by increased sympathetic function in the skin areas corresponding segmentally to the muscles. This vegetative reactivity increases parallel with the trophic disturbances of the muscles and is apparently of the greatest importance in their pathogenesis.—*M. E. Morse (Baltimore).*

4905. Kobrak, H., Lindsay, J. R., Perlman, H. B., & Dubner, H. The effect of limited cochlear lesions on cochlear potentials and middle ear muscle reflexes. *Amer. J. Physiol.*, 1936, 116, 93.—"A sufficiently small lesion did not abolish either potentials or reflex. Larger ones abolished the reflexes entirely while causing no gross change in the electric response. Extensive destruction abolished both. In histological preparations the lower coils of cochleas with an apical lesion, sufficient to abolish reflexes but not potential changes, gave the same picture as entirely normal ones. After moderate injury the potentials were present and reflexes absent for stimuli over a wide frequency range. . . .

Our results similarly indicate that the cochlear potential can persist after cochlear injuries which profoundly disturb auditory function, as evidenced by the middle ear reflexes."—*T. W. Forbes (N. Y. Psychiatric Institute).*

4906. Kwassow, D. G., & Naumenko, A. I. *Störungen in der isolierten Leitung der Impulse im durch hypertonische Lösungen und Austrocknung altierten Nervenstamm.* (Disturbances in conduction of the impulse in nerve altered by hypertonic solutions and drying.) *Pflüg. Arch. ges. Physiol.*, 1936, 237, 576-585.—If the nerve of a nerve-muscle preparation is dried locally, a secondary contraction may be obtained by electrically stimulating a portion of the nerve peripheral to the altered portion. This secondary effect is observed only in the altered nerve and is best elicited by a stimulation frequency of 20-50 per second.—*M. A. Rubin (Clark).*

4907. Langworthy, O. R., Lewis, L. G., Dees, J. E., & Hesser, F. H. Control of micturition by the central nervous system. *Amer. J. Physiol.*, 1936, 116, 95.—"Individuals with bilateral damage to the corticospinal pathway complain of urgency and frequency. . . . Certain cases with the parkinsonian syndrome also complain of frequency but not of urgency. Fluid is held in the bladder at abnormally high resting pressures, and the capacity is small. With disease of the cerebellum or its pathways the bladder capacity becomes large. The resting intravesical pressure is low. These patients complain of hesitancy, and may develop acute retention. Tabetics have very severe vesical symptoms of hesitancy and incontinence."—*T. W. Forbes (N. Y. Psychiatric Institute).*

4908. Lazarev, P. P. *O vliianii vozrasta na funktsii nervnoi sistemy i na deistviia liudei.* (Influence of age on the functions of the nervous system and on human behavior.) *C. R. Acad. Sci. U.R.S.S.*, 1933, No. 5, 58-59.—(*Biol. Abstr.* X: 8299).

4909. Lazarev, P. P. *Ob otnoshenii zakona razdrazheniia Diu Bua-Réimona i zakona razdrazheniia ionnoi teorii vozbuzhdeniya.* (Relation between the law of excitation of Du Bois-Reymond and that of the ionic theory of excitation.) *C. R. Acad. Sci. U.R.S.S.*, 1933, No. 5, 55-57.—(*Biol. Abstr.* X: 8298).

4910. Lorente de Nò, R., & Graham, H. T. The excitability of the soma (body and dendrites) of the motoneurones tested with electrical and synaptic stimuli. *Amer. J. Physiol.*, 1936, 116, 97.—"After arrival of an antidromic impulse (created by a shock delivered to the motor nerve) the excitability of the soma of the motoneurones, tested by synaptic stimuli (impulses set up in nerve fibers ending on the motoneurone) is always decreased throughout an interval lasting as long as 20 msec. But the excitability tested by electrical shocks delivered through bipolar electrodes placed in the neighborhood of the motor nucleus recovers much faster and may become normal after no more than 4 or 5 msec. With this type of stimulation, indications of a supernormal period of excitability have even been found. The fact that

after delivery of an antidromic shock the electrical excitability of the soma of the motoneurones is changed constitutes a proof that the antidromic impulse penetrates into the nerve cell; and the fact that normal or even supernormal excitability to electrical stimuli may coincide with subnormal excitability to synaptic stimuli seems to indicate that the transmission of nerve impulses across synapses is not a process immediately comparable to the stimulation of a nerve cell or fiber by electrical shocks."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4911. **Myasishchev, V. N., & Panov, A. G.** Rezul'taty i znachenie psichofiziologicheskogo issledovaniya vegetativnoi nervnoi sistemy pri nervnykh zabolевaniyakh. (The importance and results of psychophysiological study of the vegetative nervous system in nervous disturbances.) *Trud. Inst. Izuch. Mozga Bekht.*, 1936, 6, 142-155.—The preceding series of studies present comparative quantitative profiles peculiar to the sound and affected sides of the body in lesions at various levels, and elucidate the relationship between vegetative profile, sensation, tonus, and motility. They also determine the psychophysiological importance of these profiles in the sense of the subject's attitude toward his environment and the test. Clinically, this method allows subtle and exact deductions, impossible by other methods, as to the dynamics and prognosis of the lesion, affords a check-up on medical diagnosis, and adds the psychophysiological principle to clinical study. These researches also throw light on the problem of vegetative innervation, the location of vegetative centers, and the symptomatology of lesions at various levels.—*M. E. Morse* (Baltimore).

4912. **Olmsted, J. M. D., & Pinger, R. R.** Regeneration of taste buds after suture of the lingual and hypoglossal nerves. *Amer. J. Physiol.*, 1936, 116, 225-227.—It is shown that the XII cranial nerve, when sutured to the lingual, can initiate regeneration of taste buds. Therefore the presence of the VII nerve specifically is apparently not necessary, and since the proportion of sensory fibers in the XII nerve is small, there is a strong presumption that motor fibers can cause regeneration of these sensory end organs.—*T. W. Forbes* (N. Y. Psychiatric Institute).

4913. **Panov, A. G., & Polyakova, M. Ya.** O strukture vegetativnoi reaktivnosti u gemiplegikov. (Vegetative reactions in hemiplegics.) *Trud. Inst. Izuch. Mozga Bekht.*, 1936, 6, 63-86.—The majority of the 27 hemiplegics studied showed predominance of reactions on the affected side to intellectual stimuli, and on the sound side to emotional tests. A stronger reaction on the healthy side produced by counting was characteristic of aphasics. Demented patients showed weakly differentiated stereotyped reactions. In almost all the cases the profile was bilaterally parallel at the beginning of the experiment, when reactivity was low, becoming asymmetrical as it increased. Reactivity is connected, not with the nature of the stimulus, but with the involvement of the higher vegetative centers. Bilaterally decreased

reactivity due to fatigue or loss of interest must be distinguished from a unilateral decline caused by exhausted diaphoretic reactions. Decreased reactivity in repeated tests and restored parallelism of profiles indicate restoration and precede sensory and motor improvement. Unilateral extrapyramidal lesions are accompanied by decreased neurogalvanic reaction on the affected side.—*M. E. Morse* (Baltimore).

4914. **Rashevsky, N.** Some physico-mathematical aspects of nerve conduction. *Physics*, 1933, 4, 341-349.—(*Biol. Abstr.* X: 8320).

4915. **Ri, K. S.** Über die Beziehungen zwischen dem Kleinsten Zeitintervall der zwei Reize für die Zuckungssummation und die Richtung, sowohl auch über die Intensität des Reizstromes. (The relations between (1) the shortest time interval between two stimuli necessary for response summation, and (2) the direction and intensity of the stimulating current.) *J. Chosen med. Ass.*, 1933, 23, 52-60.—(*Biol. Abstr.* X: 8322).

4916. **Schriever, H., & Perschmann, G.** Die Summation nervöser Erregungen im Rückenmark bei einer unterschiedlichen Zahl leitender afferenter Fasern. (The summation of nervous excitation in the spinal cord by various numbers of conducting afferent fibers.) *Pflüg. Arch. ges. Physiol.*, 1936, 237, 519-536.—The excitation of different numbers of nerve fibers was effected by partial transection of a nerve trunk, stimulation of the whole nerve trunk or of one or more of its branches, etc. It was found that by varying the number of functional fibers the strength and duration of the reflex response and the strength and frequency of the stimulus necessary to elicit a response were altered.—*M. A. Rubin* (Clark).

4917. **Schroeder, B.** Die interpolare Spannungsverteilung in einem Kerneleiter. (The interpolary voltage distribution in a core conductor.) Berlin: Tierärztliche Hochschule, 1934, Pp. 14.—(*Biol. Abstr.* X: 8326).

4918. **Serkoff, P. N.** Elektrophysiologische Untersuchung der peripheren Hemmung im Scheren-schliesser des Flusskrebses. (Electrophysiological experiments on peripheral inhibition in the pincer claws of the crayfish.) *Pflüg. Arch. ges. Physiol.*, 1936, 237, 631-639.—The effect of an inhibitory impulse on a resting pincer muscle is not accompanied by any electrical disturbance in the muscle. The inhibitory impulse can inhibit the contraction of this muscle without altering the rhythm or size of the action current accompanying this contraction. In some cases there is an effect on the muscle action current shown by a decrease in its height and a change in its form. The author concludes that the inhibition is caused by making conduction across the neuromyal junction more difficult.—*M. A. Rubin* (Clark).

4919. **Spiegel-Adolf, M., & Spiegel, E.** Polarization measurements in the central nervous system. *Yale J. Biol. Med.*, 1935, 7, 577-578.—(*Biol. Abstr.* X: 8329).

4920. Sserafimow, B. N. **Der Einfluss des Aufenthaltes in der Berggegend auf das vegetative Nervensystem.** (The influence of residence in mountainous country upon the vegetative nervous system.) *Z. ges. phys. Ther.*, 1933, 45, 284-287.—(*Biol. Abstr.* X: 8330.)
[See also abstracts 4769, 4776, 4808, 4816, 4831, 4933, 4936, 4960, 4963, 4973, 5037, 5177.]

MOTOR PHENOMENA AND ACTION

4921. Basler, A. **Kinematographische Aufnahmen mit gleichzeitiger Registrierung von Kräften.** (Cinematographic records with simultaneous registration of force exerted.) *Arbeitsphysiologie*, 1935, 8, 585-590.—(*Biol. Abstr.* X: 8345.)

4922. Beers, L. B. **The acute and chronic effects of exercise on the latent period of the gastrocnemius muscle in man.** *Arbeitsphysiologie*, 1935, 8, 539-544.—(*Biol. Abstr.* X: 8346.)

4923. Berkson, J., & Boothby, W. M. **The variability of the energy of metabolism in normal persons.** *Amer. J. Physiol.*, 1936, 116, 10.—"The variability of determinations made on different individuals (total inter-individual variability) was studied in relation to mean values given by the Mayo Foundation Normal Standards of Basal Metabolism. From equational relationships the variability of the mean metabolism of different individuals was estimated from the intra-individual and total inter-individual variability."—T. W. Forbes (N. Y. Psychiatric Institute).

4924. Bing, H. I. **Viscerocutane og cutoviscerale reflexer paa thorax.** (Viscerocutaneous and cutovisceral reflexes on the thorax.) *Ugeskr. Laeg.*, 1926, 98, 619-626.—From systematic observation on himself and others the writer demonstrates certain hypersensitive zones on the chest walls, corresponding to fields covering the lungs. Illustrations and brief bibliography.—M. L. Reymert (Mooseheart Laboratory for Child Research).

4925. Bissonnette, T. H. **Modification of mammalian sexual cycles.** *Biol. Bull.*, 1935, 68, 300-313.—Increase of illumination time by six hours daily during the winter months hastened the onset of mating reactions and sperm ejaculating power in male ferrets. Shortening of the illumination time to eight and one-half hours daily during the winter months had the effect of delaying the onset of sexual activity in male ferrets. Testis activity and libido may be hastened by increased exposure to light, but cannot be maintained indefinitely. Sexual regression sets in during the continuation of the "long day" experiment. Similar effects of "long" and "short" days on oestrus and sexual activity were noted in the female ferret.—D. J. Ingle (Mayo Foundation).

4926. Brandis, S. A., Gorkin, Z. D., & Gorkin, M. J. [Physiological analysis of physical exercises and their influence on working capacity. 2nd communication. Influence of physical exercises on working capacity.] *Fisiol. Zh. U.S.S.R.*, 1935, 18, 205-221.—The effect of engaging in athletic sports

on three types of work, bicycle ergometer, transporting bricks, and turning a crank. Results for the bicycle were negative. For the bricks the preceding exercise sometimes increased production 1 to 3%. Rest pauses in which the subjects engaged in sports did not produce decreases in production and sometimes yielded slight increases, especially with the crank. The results are attributed to social and psychological factors.—H. E. Burtt (Ohio State).

4927. Butorin, V. I., & Kravchenko, E. A. **O vlyaniu vegetativnykh yadov na psikhogalvanicheskuyu reaktivnost u nevrotikov s rasstroistvom funktsii vegetativnoi nervnoi sistemy.** (The effect of vegetative poisons on the psychogalvanic reactions of neurotics having disturbances of the vegetative nervous system.) *Trud. Inst. Izuch. Mozga Bekht.*, 1936, 6, 124-141.—The psychogalvanic reactions following intramuscular injections of adrenalin, atropin and pilocarpin depend on changes in conductivity due to the physiological effect of the drug, mainly changes in diaphoresis; and on the direct effect of the drug on the psychophysiological and psychic processes. Pilocarpin increases and atropin decreases the psychogalvanic reaction. Adrenalin usually decreases it. The authors conclude that the general tone of the vagus or sympathetic is of no immediate importance in psychogalvanic reactions. The determining factor is the tone of the region examined, i.e. of its sweat glands.—M. E. Morse (Baltimore).

4928. Christiaens, A. G. **L'habileté manuelle.** (Manual skill.) *C. R. VIII Conf. int. Psychotech.*, 1934, 62-66.—Skill depends primarily on force and direction of movements and sensory equipment. The potentialities are hereditary. At adolescence it is not always possible to predict the ultimate level of skill that may be attained.—H. E. Burtt (Ohio State).

4929. Darrow, C. W. **The palmar galvanic skin reflex (sweating) and parasympathetic activity.** *Amer. J. Psychol.*, 1936, 48, 522-524.—A brief summary of various experiments upon the galvanic skin reflex and various aspects of the sympathetic system leads to the conclusion that in the palmar sweat glands "it appears that we have in this mechanism an instance of what is by no means the unique phenomenon of functionally parasympathetic or 'cholinergic' fibres arising in the thoracico-lumbar sympathetic system. It is of note that the fibres in this instance are apparently postganglionic in character."—D. E. Johannsen (Skidmore).

4930. Davis, H., Rosenblueth, A., & Rempel, B. **Interpretation of the electrogram of certain smooth muscles.** *Amer. J. Physiol.*, 1936, 116, 35.—"Repetitive stimulation of pre- and post-ganglionic fibers to the nictitating membrane or pilomotors gives evidence of a fundamental independence of the components I and II of the electrogram. At certain frequencies I apparently shrinks, while II grows. This might be due to a shift of latency of II. The latency of I is constant. It might be due to a differential growth of II, overlapping and cancelling I. Either alternative implies independence. . . . These

data suggest that I and II are distinct phenomena and that neither one is analogous to the spike potential of skeletal muscle."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4931. *de Waele, H., & Van de Velde, J. L'artère hépatique zone réflexogène.* (The hepatic artery as a reflexogenous zone.) *Arch. int. Physiol.*, 1933, 36, 371-381.—(*Biol. Abstr.* X: 8337).

4932. *du Buy, H. G. The physiology of an invertebrate smooth muscle (retractor of *Thyone bryareus*).* *Amer. J. Physiol.*, 1936, 116, 22-23.—"Curare blocks the response to indirect stimulation, as in the case of striated muscle. Direct stimulation after curare causes only local contraction under the stimulating electrodes. This indicates that normally the excitation wave is distributed along the whole muscle by way of its nerve supply. The conductile and the contractile mechanisms can be separated."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4933. *Dusser de Barenne, J. G. Simultaneous facilitation and extinction of motor response to stimulation of a single cortical focus.* *Amer. J. Physiol.*, 1936, 116, 39-40.—"The response to the third stimulation was larger than that to the second, often even larger than that to the first stimulation. This shows that the third response, following the second stimulation after an interval of 2 or 3 seconds, is facilitated by that stimulation. If only two stimulations, 2 or 3 seconds apart, were given, the facilitation to the second response was much greater. That the facilitation in the first experiment, with three stimulations, was less must be due to the fact that the motor focus was then still under the extinguishing influence of the first stimulation. Thus it can be shown: (1) that facilitation and extinction can exist simultaneously in the central nervous system upon cortical stimulation, and (2) that, when present simultaneously, they are acting antagonistically in determining the size of motor response to repeated electrical stimulation of a single motor focus."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4934. *Fenn, W. O. Electrolyte changes in rat muscle during stimulation.* *Amer. J. Physiol.*, 1936, 116, 47-48.—"The essential change is therefore an exchange of sodium for potassium during stimulation which is reversed in recovery."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4935. *Finch, G. "Hunger" as a factor determining the magnitude of conditioned and unconditioned salivary responses.* *Amer. J. Physiol.*, 1936, 116, 49-50.—"Dogs in which conditioned salivary responses had been thoroughly established were tested after food-deprivation periods ranging from 0 to 96 hours. The data show that the magnitudes of both the unconditioned and conditioned responses vary with food-deprivation time."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4936. *Gellhorn, E. On the role of CO₂ in counteracting the effects of anoxemia on brain stem and cortex.* *Amer. J. Physiol.*, 1936, 116, 57-58.—"The considerable loss in brightness distinction observed in O₂-lack (Masson discs) was either completely

prevented or greatly diminished in the presence of 3 per cent CO₂. Severe disturbances in writing under O₂-lack were also absent when 3 per cent CO₂ was simultaneously inhaled. Whereas the number of nystagmic movements resulting from galvanic stimulation of the vestibular apparatus was greatly diminished under O₂-lack (6.5 per cent) and led not infrequently to a complete absence of response, nystagmus remained unaltered, i.e., the number of responses was the same as in air when the rabbit inhaled 6.5 per cent O₂ + 5 per cent CO₂. The explanation of these results is probably to be found in the improvement in respiration and consequently in circulation due to CO₂ as well as in the changes of the O₂-dissociation curve."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4937. *Gesell, R. Fusillade patterns of inspiratory and expiratory muscles and their mechanical effects on the respiratory act.* *Amer. J. Physiol.*, 1936, 116, 60.—"Fusillade patterns of inspiratory and expiratory contractions during eupnea were compared and their mechanical effects considered. Inspiratory contractions were characterized by a progressively accelerating rate of muscle fiber twitching and by a progressive recruitment of fibers up to the end of inspiration. Expiration was initiated by a sudden reversal of this inspiratory innervation. This mode of innervation and denervation produced a triangular configuration of the electrogram indicating the changing strength of muscular contraction. Expirations were of three types: (1) passive; (2) 'rectangular'; (3) 'triangular.' Rectangular expiration was characterized by a uniform muscle fiber rhythm and uniform number of action potentials. Triangular expiration was characterized by a maximum number of potentials at the beginning of expiration, progressively diminishing with time. It is suggested that rectangular and triangular expirations may be fundamentally different: that triangular expiration is a product of a direct discharge from the expiratory side of the respiratory mechanism; that rectangular expiration is an after-effect of inhibition of a tonic viscero-postural reflex."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4938. *Gesell, R. Fusillade patterns of inspiratory and expiratory muscles and their effects on the respiratory act.* *Amer. J. Physiol.*, 1936, 116, 228-238.—Data are reported following up points in a previous paper. The electrogram of muscular activity in deep breathing of dogs was studied. The fusillade pattern of inspiratory muscles shows the occurrence of recruitment of fibers and acceleration of fiber rhythm, which results in a generally triangular pattern in the electrogram with the apex at the start of inspiration. The expiratory responses, however, fall into three types: (1) in which no participation of expiratory muscles occurs; (2) in which the contraction is of uniform tonic nature; and (3) in which a decrease of contracting units causes a reversed triangular pattern. The significance of the different probable mechanisms of breathing which are represented is discussed. The mechanisms controlling

lung volume are suggested as factors influencing the rate of breathing.—*T. W. Forbes* (N. Y. Psychiatric Institute).

4939. Gibson, J. J., & Stephens, J. M. Discussion: a note on the conditioning of voluntary reactions; reply. *J. exp. Psychol.*, 1936, 19, 397-400.—It is Gibson's criticism that in Stephens' previously reported experiments the subjects may have been giving not conditioned reactions but only what would be called false reactions in the conventional choice-reaction procedure. The need for a specific type of control experiment is emphasized. In his reply, Stephens admits the need for a control such as Gibson suggests in order to demonstrate that voluntary reactions can be conditioned. However, the conditioning of voluntary reactions was a secondary matter and Gibson's criticism does not invalidate the main conclusions.—*H. W. Karn* (Pittsburgh).

4940. Gozzano, M. Ricerche sui riflessi di fissazione e di opposizione. (Studies on the reflexes of fixation and opposition.) *Riv. Patol. nerv. ment.*, 1934, 43, 119-126.—(*Biol. Abstr. X*: 8283).

4941. Griffitts, C. H. The relation between anthropometric measures and manual dexterity. *J. appl. Psychol.*, 1936, 20, 227-235.—Little relationship is found between scores in tests for motor abilities and anthropometric measures for a group of 60 sophomores.—*R. S. Schultz* (Psychological Corporation).

4942. Hammond, T. E. The constitution and its reaction in health. London: Lewis, 1934. Pp. 170.—*R. R. Willoughby* (Brown).

4943. Hsiao, H. H., & Cheng, P. L. [An experimental study of the reaction of quick discrimination.] *Educ. Res. nat. cent. Univ.* (Chinese), 1935, 3, No. 1, 33-57.—Two experiments were performed to compare the speed of discriminatory reaction with that of motion (or rather, simple cognition), and to find out the most economic way of improving them. The apparatus used was specially devised and consists of two wooden boards; each has besides the margins an area of 8 sq. inches, and may be mounted on an extra wooden board which has a thin brass coating. Board A is not painted and contains 32 holes which are so arranged that each horizontal or vertical row has 4 unevenly-spaced holes. Board B is divided into 64 squares and contains 64 holes in 8 rows, half of the squares being painted white and half black, the positions of the 32 white squares being the same as in Board A. Board A was used to test the speed of motion and the subjects were required to touch all the holes one by one and row by row, by means of a wooden pen with a brass head. Board B was used to test the speed of discriminatory reaction and the subjects were required to touch the 32 holes in white squares. The time spent for each trial was recorded. In Experiment I, the subjects were 44 workmen whose ages ranged from 15 to 38 years, and were divided into 2 groups. Group A was first tested for the speed of discriminatory reaction and then for that of motion; in Group B the testing order was reversed. The results showed that the average time spent for

discriminatory reaction (21.91 secs. for the right and 23.32 secs. for the left hand) was greater than that for simple cognition or motion (18.87 secs. for the right and 21.05 secs. for the left hand). The speed of the right hand was correlated with that of the left hand. There was a marked beneficial influence from the preceding practice to the next succeeding test. In Experiment II, the subjects were 35 workmen whose ages ranged from 21 to 33 years, and were divided into 3 groups. All subjects were tested 6 times in 16 days, but the time interval between every 2 successive tests varied differently in either of the 3 groups. Group A was tested on the 1st, 2nd, 4th, 7th, 11th, and 16th days; Group B, on the 1st, 6th, 10th, 13th, 15th, and 16th days; Group C, on the 1st, 4th, 7th, 10th, 13th, and 16th days. The results showed that the order of practice had an influence on the performance. The shorter the time interval between the 2 successive tests the higher was the percentage of time decreased in a subsequent test, and vice versa. The method of practice which had short time interval at the beginning and then gradually longer ones between the 2 successive practices or tests (i.e. Group A) proved to be most economical or made most rapid improvement; next came that which had equal time intervals (i.e. Group C); and last came that which had long time interval at the beginning and then gradually shorter ones (i.e. Group B).—*C.-F. Wu* (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

4944. Huang, I., & Chang, C. [The identical elements and transfer of maze learning.] *Chung Hua educ. Rev.*, 1935, 23, No. 1, 55-65.—The aim of this experiment was to determine whether transfer of training is a general principle. The subjects used were 50 adults, 40 men and 10 women, mostly college juniors and seniors; they were divided into a control and an experimental group of 25 persons each. Four finger mazes were employed. The two practice mazes had respectively $\frac{3}{4}$ of the right paths and $\frac{1}{4}$ of the blind alleys identical with a demonstration maze, and were designated as *A + x* and *A + y*. The test maze, which was common to both groups, had $\frac{1}{2}$ of the right paths and $\frac{1}{2}$ of the blind alleys identical with the practice maze used by the experimental group, but was entirely different from that used by the control group, and was designated as *B + y*. Both groups first learned their respective practice maze, and then after an interval of 1 day learned the same test maze. Time, errors, and retracings were recorded. The mastery criterion for both practice and test mazes was 3 correct out of 4 successive trials. Introspective report of the experimental group was also taken as a check. Only the records of the 2nd to 21st trials inclusive were treated. The results showed that the total number of errors for the control group was 1676 and that for the experimental group 1701, with a difference of 1.5% only. Thus the experimental group did not have much better performance than the control group, indicating that there was no transfer of identical elements. Again, the experimental group committed in the practice maze which had an unfamiliar y part 27.8%

and in the test maze which also had the *y* part but was a familiar one, 27.1% of the total number of errors, the difference being negligible. Thus it might be concluded that there was only a very slight or almost no transfer between the identical elements (in this case, *y* part of the maze). Although objectively the *y* part in both practice and test mazes was an identical element, subjectively it was almost as strange in one case as in another. In learning the two mazes, the subjects of the experimental group saw only the structure of the individual maze as a whole but not the independent *y* part, and learned with equal effort. Thus the identical element is not the sufficient condition of transfer of learning; in other words, the identical element may be transferred but it is not a general principle.—*C.-F. Wu* (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

4945. Iaworski, G., & Liberson, W. *Recherches sur le pouvoir de discrimination des rythmes des mouvements volontaires.* (Ability to discriminate rhythms in voluntary movements.) *Travail hum.*, 1936, 4, 163-195.—While tapping with the hand or forearm the subject was required to accelerate. The initial rate is set by the experimenter, but not the rate of acceleration. The rhythm usually increases by definite steps. The relation between successive steps follows Weber's law. The ratio of one rhythm to the preceding is about 1.2 until the rate reaches 250 per min., whereupon the ratio becomes 1.13 to 1.16. The results are clearer with the hand than with the forearm.—*H. E. Burtt* (Ohio State).

4946. Irvine, S. R. *Histology of the extra-ocular muscles.* *Arch. Ophthal.*, Chicago, 1936, 15, 847-858.—A review of embryological and histological studies of extra-ocular muscles with a view to determining whether they afford evidence of a proprioceptive sense. Peculiarities in structure of these muscles and richness of nerve endings suggest that they may be of splanchnic origin and that they are phylogenetically more primitive than other striated muscles in man. Although certain morphologic characteristics suggest that some of the nerves may be sensory and presumably subserve a proprioceptive sense, other considerations, such as their simple and atypical structure and the lack of obvious connection with a sensory nucleus, make this by no means certain. The author concludes that the presence of sensory nerves in the eye muscles has not been demonstrated by anatomic methods of research and remains a problem to be approached through physiological investigations.—*M. R. Stoll* (Mass. Eye & Ear Infirmary).

4947. Jacobson, E. *The influence of skeletal muscle tension and relaxation on blood pressure.* *Amer. J. Physiol.*, 1936, 116, 86.—"It is well known that during the first minutes after lying down the blood pressure tends to fall. In records begun about fifteen minutes subsequent to lying down, a further fall both in systolic and diastolic pressure commonly occurs provided that skeletal muscle contraction is in the neighborhood of zero in the skeletal muscular regions tested. If there is striking failure to relax

in various muscle-groups, the blood pressure commonly does not fall markedly during the stated interval, but may even rise."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4948. Kisseelew, M., & Marchak, H. [Action currents of man during prolonged work. The effect of training.] *Fiziol. Zh. U.S.S.R.*, 1935, 18, 180-190.—A record is given of action currents of the biceps by string galvanometer while lifting weights. Training decreases the period during which action currents are present. After training they appear only during the lifting phase and at the beginning and end of the lowering phase. With an untrained subject they occur during the entire lowering phase.—*H. E. Burtt* (Ohio State).

4949. Kupalov, P. S. *Ugashenie uslovnogo refleksa pri dlinnom i korotkom primenennii uslovnogo razdrazhitelia.* (Extinction of a conditioned reflex by long and short application of conditioned stimulus.) *Arkh. biol. Nauk.*, 1933, 33, 679-688.—(Biol. Abstr. X: 8295).

4950. Kupalov, P. S., & Lukov, B. N. *Deistvie korotkogo primenenia uslovnogo razdrazhitelia.* (Effect of brief application of a conditioned stimulus.) *Arkh. biol. Nauk.*, 1933, 33, 665-677.—(Biol. Abstr. X: 8296).

4951. Liddell, H. S., Sutherland, G. F., Parmenter, R., & Bayne, T. L. *A study of the conditioned reflex method for producing experimental neurosis.* *Amer. J. Physiol.*, 1936, 116, 95-96.—"In the conditioned reflex laboratory the animal learns to remain quietly on a platform. Limitation of freedom, first imposed from without, but finally imposed by the animal upon itself, seems to be the fundamental cause of nervous strain, increase of which may later lead to neurosis. It seems as if the neurotic animal has suffered some special and permanent injury to its nervous system. In fact, in one sheep the neurotic condition persisted until senility at 13 years . . . For the purpose of examining the consequences of progressive limitation of freedom during conditioning we selected the pig because its resistance to restraint is violent and varied. Pigs secured food by lifting the lid of a box. At first, complete freedom was allowed and a buzzer signalled delivery of the food. Freedom was gradually restricted. . . . We are now attempting, by such means, to precipitate experimental neurosis in the pig."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4952. Luh, C. M. [Combination and division of a motor skill.] *Chung Hwa educ. Rev.*, 1935, 23, No. 1, 233-238.—The efficiency of whole and part learning of tossing balls continuously in the air was studied. 15 subjects whose ages ranged from 16 to 30 years were used and divided into 3 groups of 5 persons each. In the practice period, all groups were required to toss 3 balls with the double-hand method for 130 mins., distributed over 4 periods. In the experimental period, the experimental group was required to toss 2 balls with the single-hand method, i.e., with each hand alone, each for 65 mins., distributed over 4 periods; the control group A was given no practice, while the control group B was required to

toss 3 balls with the double-hand method for 130 mins., also distributed over 4 periods. The whole program was finished in 7 days. Each period of practice was divided into 5-min. sections; there were 8 sections in a day, except that on the last or 7th day there were 12 sections. The average number of upward tossings in each section of practice was taken as the degree of mastery of that section. The results showed that to acquire a double-handed skill the whole method of practice by both hands was superior to the part method of practice by a single hand. The efficiency of single-handed practice was, due to the effect of interference, inferior to no practice. The effect of interference was most marked at the beginning of change from the single-handed practice (part method) to the double-handed practice (whole method), while transfer from the former to the latter was slight even at the later stage of practice.—C.-F. Wu (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

4953. Luisada, A. Beitrag zum Studium der Dystonien und Dyskinesien. (Contribution to the study of dystonias and dyskinesias.) *Z. ges. Neurol. Psychiat.*, 1933, 144, 742-769.—(Biol. Abstr. X: 8305).

4954. Nicolai, L. Über das Beugungsspektrum der Querstreifung des Skelettmuskels und einen direkten Beweis der Diskontinuität der tetanischer Kontraktion. (The refraction spectrum of the striations of skeletal muscle and a direct demonstration of the discontinuity of the tetanic contraction.) *Pflüg. Arch. ges. Physiol.*, 1936, 237, 399-411.—Tetanus in frog sartorius and abdominis rectus muscle on stimulation frequencies up to 60 per second is a discontinuous process.—M. A. Rubin (Clark).

4955. Pavlov, I. P. Behavior of man and animal. (Film.) Boston: International Educational Pictures, Inc. 6 reels, 16 mm.; also 35 mm. \$10.00 rental; (16 mm.) \$165 sale.—A silent film produced by Mejrabpomfilm under the supervision of Pavlov and Sergei Eisenstein. The picture deals with Pavlov's experiments and the apparatus which he invented to test conditioned reflexes. Experiments in conditioned reflexes are carried on during the feeding of various animals. The unconditioned responses are shown, after which conditioning takes place and the reaction is noted. Portions of the brain are removed and reactions tested. One sequence shows the reaction of an idiot to various stimuli.—W. R. Miles (Yale).

4956. Peters, W., & Wenborne, A. A. The time pattern of voluntary movements. *Brit. J. Psychol.*, 1936, 26, 388-406; 27, 60-73.—The time pattern of voluntary hand-arm movements was studied by measuring with a chronoscope the times taken by the hand in moving over consecutive sections of a track. Three types of movement were observed, the "motor impulse effect," the polyphasic movement, and the amorphous movement. The first occurred when the hand was moved at maximum speed from one point to another over a straight

track; the velocity increased over more than half of the distance, then decreased. The time pattern was not affected by the direction of movement or the hand used. The second occurred when the hand moved at maximum speed over a spiral or rectangular track, and showed several maxima and minima of velocity, the time pattern of each phase approximating to that of the motor impulse effect. The third occurred when movements over a straight track had to be carried out with great precision; they lacked a definite time pattern. Sensory control was present in various degrees in the different types of voluntary movement; there seemed to be none present in the motor impulse effect once movement had started, but the amorphous movement was controlled continuously or intermittently. The course of the former had evidently been determined in anticipation by the intention.—M. D. Vernon (Cambridge, England).

4957. Petersen, W. F., & Milliken, M. E. The patient and the weather. Vol. I, part 2. Autonomic integration. Ann Arbor: Edwards, 1936. Pp. xxx + 781. \$9.00.—One of a series of volumes concerned with the relationship between meteorological conditions and bodily states. In the present work the authors discuss constitution, the limits of biological reaction as regulated by the autonomic apparatus, and integration as observed in normal individuals living in the storm tracks. The organism attempts to maintain a proper balance by a definite rhythm in the chemical, endocrine, and nervous processes dependent upon the meteorological environment. Of especial interest to psychologists are the sections on moods, sex rhythm in the female, restlessness, sleep, and activity. Numerous tables, graphs and charts. Bibliographies but no index.—D. Shakow (Worcester State Hospital).

4958. Pillsbury, W. B. Body form and success in studies. *J. soc. Psychol.*, 1936, 7, 129-139.—A positive relationship between body form, measured by a height-weight-chest-circumference index, and scholastic achievement as revealed in semester grades was found for each of four groups of undergraduates, totaling 971 students. Coefficients of correlation ranged from .05 to .29 for the four groups, indicating an association of scholastic attainment with the asthenic type. A scatter diagram revealed, however, that the regression line was far from rectilinear; those students who had the best grades tended to fall near the border between the athletic and asthenic types.—E. B. Newman (Swarthmore).

4959. Sehestedt, H. Beitrag zur Kenntnis des Babinskischen Zeichens. (Contribution to knowledge of the Babinski sign.) *Dtsch. Z. Nervenheilk.*, 1933, 132, 212-217.—(Biol. Abstr. X: 8327).

4960. Shirokii, V. F. K probleme nervnoi regulatsii serdtsa. (Nerve regulation of the heart.) *Klin. Med. Mosk.*, 1932, 10, 240-248.—(Biol. Abstr. X: 8328).

4961. Simonson, E. L'adaptation au travail physique. (Adaptation to physical work.) *Travail hum.*, 1936, 4, 129-152.—Adaptation (warming up) has been neglected in studies of work curves for

practical purposes. It is manifested in the decrease of calories consumed, decrease of metabolic products (especially lactic acid), decrease in oxygen debt, and decrease in variability of muscular performance. It takes place more rapidly with heavy loads, presumably because all the muscle fibers then work simultaneously. Considering warming up as well as fatigue, the following suggestions are made as to length of rest pauses: for average or heavy work a pause of 10 minutes is desirable, but never more than 20; for lighter work involving mainly coordination, brief and frequent pauses of 2 or 3 minutes are best, or else one or two longer pauses widely spaced.—*H. E. Burtt* (Ohio State).

4962. Spielberg, P. Die Änderungen der Bewegungscoordinationen im Gange während des Arbeitstages. (Changes in coordination in walking during the work day.) *Arbeitsphysiologie*, 1935, 8, 783-800.—The supporting muscles operate more in fatigue; linear displacement of the joints is less, especially of the legs; the steps are shorter and slower. If the subject is relieved of a load he is carrying the steps become longer and quicker and the linear displacement of the joints increases.—*H. E. Burtt* (Ohio State).

4963. Taylor, F. V. The effect of transposition of the Achilles tendon on the walking and righting movements of the frog. *J. comp. Psychol.*, 1936, 21, 245-273.—This experiment substantiates the finding of Manigk that frogs whose Achilles tendons have been transposed walk with the normal front leg-hind foot rhythm. The conclusion of Manigk to the effect that such results indicate a transformation in the innervation rhythm of the crossed gastrocnemii which causes "them suddenly to cease acting as the antagonists of the flexors of the same side and to take on the function of antagonists of the flexors of the opposite side" was not substantiated. A number of control experiments involving denervation showed that the gastrocnemii do not produce foot movement. Foot extension was found to be "produced by other muscles in the leg and thigh acting through an intricate lever system." The data on transposition of the Achilles tendon are thus in harmony with the concept of reciprocal innervation and the general theory of reflex action; Manigk and Gestalt theorists had supposed otherwise. Data showing that, under certain conditions, "the transposition of the distal end of the gastrocnemius muscle does not affect its innervation sequence" are also presented. Bibliography.—*N. L. Munn* (Peabody).

4964. Thomas, M. Le domaine de l'instinct. (Instinct et réflexes. Instinct et tendances.) (The domain of instinct. Instinct and reflexes; instinct and tendencies.) *Rev. Quest. sci.*, 1934, Sept. and Nov., 114-157.—Instinct is "the hereditary and innate knowledge of a specific plan of life." Reflex and instinct are separate: the former, unconscious, is "imposed by the organism on the individual," while the latter is "voluntary, imposed upon the organism by a mental act." It is necessary to eliminate from the domain of instinct "the specific and non-hered-

itary activities determined by needs which are not physiological, essential to the conservation of life," the individual and non-specific tendencies.—(Courtesy *Année psychol.*)

4965. Thomas, M. La notion de l'instinct, connaissance innée, et sa tenue devant la méthode expérimentale. (The concept of instinct, innate cognition, and its status relative to the experimental method.) *Scientia, Bologna*, 1936, 59, 252-264.—The constancy among individual animals in the mechanisms by which biological ends are attained demonstrates an internal control beside which environmental forces become relatively unimportant. It implies an instinct in the form of innate knowledge of a specific plan of life. The experimental method, if logically analyzed, contains nothing to contradict this definition of instinct.—*D. W. Chapman* (Recorder's Court, Detroit).

4966. Tuitso, M. Vergleichende Untersuchungen über die Geschwindigkeitskurve der menschlichen Atmung bei Ruhe und Körperarbeit. (Comparative studies of the rapidity curve of human breathing in rest and work.) *Arbeitsphysiologie*, 1935, 9, 16-26.—A record of breathing at rest and on a bicycle ergometer is presented. The inspiration-expiration ratio in the former case is about .86 and in the latter .92. More air is breathed during work, but not directly in proportion to the intensity of the work.—*H. E. Burtt* (Ohio State).

4967. Várkonyi, H. A cselekvések elemzése. (The analysis of actions.) *Mag. psychol. Szle*, 1935, 8, 293-323.—*H. J. Wegrocki* (Worcester State Hospital).

4968. Waterman, L. Fréquences maximales des mouvements successifs volontiers. (Maximal frequencies of successive voluntary movements.) *Acta rev. neerl. Physiol.*, 1935, 5, 6-7.—(Biol. Abstr. X: 8356).

4969. Wenger, M. A. External inhibition and disinhibition produced by duplicate stimuli. *Amer. J. Psychol.*, 1936, 48, 446-456.—The present study was undertaken in order to throw light upon the questions whether the same stimulus presented at different times can effect both external inhibition and disinhibition of a conditioned response when it is in an excitatory and an inhibitory phase respectively, and whether the same stimulus can simultaneously effect external inhibition of one conditioned response and disinhibition of another conditioned response. The unconditioned stimulus was an electric shock applied to the foot; the conditioned stimulus was a red light; the extra stimulus was a slight vibration applied to the hand. The S's were 20 undergraduate students. The results proved that external inhibition and disinhibition can be produced by duplicate stimuli. "The effect of extraneous stimulation by the tactal vibrator was not invariable at either phase of the experiment. During the 40 tests for external inhibition reversal effects (increments in response) occurred 10 times; during the 40 tests for disinhibition reversal effects (decrements in response) occurred 8 times and in 3 cases there

was no recordable effect." "Autonomous disinhibition believed to be due to postural adjustments and transient interruptions of somnolence made necessary a protracted extinction series. A possible relationship between decreased tonus level and extintive inhibition is noted. There is some indication that the greater of the two intensities of tactual vibration used produced a greater mean amount of external inhibition and disinhibition than did the weaker stimulus."—D. E. Johannsen (Skidmore).

4970. Winter, J. E. A comparison of the cardio-pneumograph and association methods in the detection of lying in cases of theft among college students. *J. appl. Psychol.*, 1936, 20, 243-248.—This experiment is based on a practical situation dealing with stealing in women's dormitories; it included 25 subjects. A combination of the two methods in this investigation is more reliable than either separately. Breathing was found to be of little significance as a criterion of guilt. The word association test was less reliable than the cardio-pneumo-psychograph test.—R. S. Schultz (Psychological Corporation).

4971. Wyman, L. C., & Tum Suden, C. The distribution of adrenergic vasodilators in the rat. *Amer. J. Physiol.*, 1936, 116, 182-186.—A previous paper by the authors suggested that rats possess adrenergic vasodilators, and that there might be a difference of distribution from that usually expected for the cat and the dog. In the present paper the splanchnic and peripheral circulations were reduced by ligating the coeliac and superior mesenteric arteries in one case and subclavian and abdominal aorta in the other. The effects of adrenalin chloride and ergotamine tartrate on blood pressure were studied. It is concluded that "in the rat, as in the cat, adrenergic vasoconstrictors are more abundantly distributed to the splanchnic area as compared with the peripheral area; but that the rat, unlike the cat, has a significant distribution of adrenergic vasodilators to both regions." It is suggested that the rat may be called a "splanchnic animal" and may need more splanchnic dilation due to greater bulk of visceral organs, as compared to skeletal muscle, than in the case of the cat.—T. W. Forbes (N. Y. Psychiatric Institute).

[See also abstracts 4774, 4776, 4781, 4798, 4855, 4865, 4868, 4873, 4891, 4892, 4893, 4897, 4905, 4907, 4972, 4973, 4974, 4977, 4978, 4994, 4997, 5005, 5030, 5033, 5034, 5059, 5060, 5062, 5116, 5128, 5177, 5180, 5185, 5187.]

PLANT AND ANIMAL BEHAVIOR

4972. Bissonnette, T. H. Sexual photoperiodicity. *J. Hered.*, 1936, 27, 171-180.—Environmental factors, such as relative lengths of day and night, intensity of illumination, and even color or wave length of light, will influence in varying degrees the seasonal sexual reproduction of some plants and animals. Genetic factors of particular organisms determine the choice of factors and the form and degree of sexual and reproductive reaction. If

hereditary potentials or proper environmental conditions are lacking, then seasonal reproductive cycles will not be released. Research dating back fifty years is reviewed for specific examples of plants and animals which reproduce when days are (1) shorter, (2) longer, (3) without definite day-length ratio; and for animals which respond to other factors (temperature, food, etc.) as well as day length. In general, the eye functions as receptor for the light stimulus. Sexual activity for some animals may be induced or decreased by experimental lighting conditions which stimulate the anterior hypophysis and through it the sex glands. Production of young in a season favorable to survival for a species is a safeguard evolved in the process of natural selection.—G. C. Schwesinger (American Museum of Natural History).

4973. Chao, L. Hydrogen ion concentration and the rhythmic activity of the nerve cells in the ganglion of the *Limulus* heart. *Biol. Bull. Woods Hole*, 1935, 68, 69-73.—(Biol. Abstr. X: 8265).

4974. Culler, E. Motor conditioning in dogs. *Amer. J. Physiol.*, 1936, 116, 34.—T. W. Forbes (N. Y. Psychiatric Institute).

4975. Fields, P. E. Studies in concept formation. IV. A comparison of white rats and raccoons with respect to their visual discrimination of certain geometrical figures. *J. comp. Psychol.*, 1936, 21, 341-355.—Rats and raccoons learned to discriminate between triangles and circles. The raccoons learned less readily than rats, a fact attributed to imperfections of the apparatus and method used with the former. The visual acuity of the raccoons was also relatively poor. However, in tests involving the substitution of new triangles for the original one, the raccoons were superior to the rats. The author says that "the raccoons showed an ability to generalize which was far superior to that obtained with rats. They made an immediate transfer to all rotated equilateral and right angle triangles." Bibliography.—N. L. Munn (Peabody).

4976. Fortuyn, A. B. D. The cephalization factor in the hamster and the mouse. *Psychiat. neurol. Bl., Amst.*, 1934, Nos. 3-4, 392-395.—(Biol. Abstr. X: 8277).

4977. Kellogg, W. N., & Pomeroy, W. B. Maze learning in water snakes. *J. comp. Psychol.*, 1936, 21, 275-295.—12 water snakes were trained to traverse a T-maze containing two blind alleys. The incentive was escape from cold water; there was warm water in the home compartment. Typical learning curves for time and errors were obtained. There is some indication that shedding, which necessitated interruptions in the training, produces some physiological change which interferes with learning. "Vision was apparently of considerably less importance than the ability of a snake to 'feel' its way through the maze by pushing against the sides with its nose."—N. L. Munn (Peabody).

4978. Kennedy, J. L., & Stone, C. P. Cross-sectional area of maze pathways in relation to learning by rats. *J. comp. Psychol.*, 1936, 21, 325-340.—

Miles has suggested that differences in maze learning may be related to the cross-sectional area of the maze. It was to test this hypothesis that the present experiment was conducted. Three mazes of the same pattern, but having different cross-sectional areas were used. Equated groups of rats learned these under comparable conditions. In terms of trials to learn, there was no difference in the difficulty of the three mazes. Data on errors showed no consistent trend. The authors say that "Because of disharmony among the several indicators of learning it is concluded that no positive generalization in favor of the cross-sectional hypothesis of Miles is warranted." Other hypotheses which may account for observed differences in error scores between the three mazes are presented. Bibliography.—N. T. Munn (Peabody).

4979. Miya, K. [The group structure of fowls.] *Jap. J. Psychol.*, 1936, 11, 20-37.—When a_1 (cock or hen) of *A* group comes across b_1 of *B* group (b_1 being stronger than a_1) in a field which is open in a psychological sense, then a_1 runs away from b_1 . But if the field of encounter is closed, there arises a combat between the weaker a_1 and the stronger b_1 . According to the author the force of the field plays here an important role. A group solidarity is found also in fowl groups; for instance, a_2 of *A* group, when he rambles alone, runs away from b_2 of *B* group, but when he meets b_1 in *A* group he does not escape from b_1 , and sometimes dares to attack him. When a_1 , which is white but has been colored with ink (red, black or yellow) comes back to his own group *A*, he is not received as usual; consequently combat or teasing arises. This fact indicates that fowls can distinguish colors of feathers, but they do not recognize their fellows when inked.—R. Kuroda (Keijo).

4980. Ohtsuka, N. A contribution to the visual distance perception in the tortoise *Clemmys japonica*. *Acta psychol. Keijo*, 1935, 2, 124-137.—Discriminative ability of visual distance in the tortoise was tested with the "fall-punishment" method. It was shown that the animals exhibit a positive reaction to food within a distance of 35 cm. They can discriminate a distance within reach from one which is larger by 4 cm. or more. The accuracy of distance discrimination is variable among individuals; the most competent animal distinguished between distances differing by 3 cm. Monocular vision showed no effect except in one animal.—R. Kuroda (Keijo).

4981. Roeder, K. D. An experimental analysis of the sexual behavior of the praying mantis (*Mantis religiosa* L.). *Biol. Bull.*, 1935, 69, 203-220.—The preliminary courtship of the male mantis consists in a slow approach toward the female, immobilization when reacted to by the female, and final mounting. Sexual cannibalism is common, in which the female may capture the male before or after copulation. The female never attacks the male after the mating position is reached. Copulation may be carried out by the male after the head and thorax are destroyed. The head contains the subesophageal ganglion, which normally inhibits lateral locomotor movements in

the female. The sexual reactions of each sex are promoted by the last abdominal ganglion.—D. J. Ingle (Mayo Foundation).

4982. Takemasa, T., & Nakamura, K. *Hebi wo mochieta hitotsuno gakushu jikken*. (A learning experiment with snakes.) *Kyoiku Shinri Kenkyu*, 1935, 10, 575-581.—Snakes were trained to find a certain exit. The effect of learning seems to appear when the animals are trained to react to one of two stimuli, but its frequency depends on one hand upon the degree of training and practice and on the other hand upon the strength of behavior or internal trend.—R. Kuroda (Keijo).

[See also abstracts 4799, 4800, 4883, 4955, 4963, 4971, 5030, 5173.]

EVOLUTION AND HEREDITY

4983. Gesell, A., & Blake, E. M. Twinning and ocular pathology. *Arch. Ophthal.*, Chicago, 1936, 15, 1050-1071.—In addition to reporting in detail the occurrence of bilateral macular coloboma in a pair of monozygotic twins, the authors include abstracts of comparative studies of twins dealing with ocular pathology and a bibliography of more general articles. They note that this occurrence of macular colobomas in monozygotic twins indicates the genetic character of the anomaly in opposition to explanations which have referred such anomalies to accidental conditions of development. They repeat the observation that identity of iris pattern appears to be a good indicator of monozygosity and note numerous other similarities in the eyes of such twins.—M. R. Stoll (Mass. Eye & Ear Infirmary).

4984. Himes, N. E. Medical history of contraception. Baltimore: Williams & Wilkins, 1936. Pp. 521. \$7.00.—R. R. Willoughby (Brown).

4985. Kerr, M. Temperamental differences in twins. *Brit. J. Psychol.*, 1936, 27, 51-59.—The Rorschach ink-blot test was used to study the relative similarity of temperaments in identical and fraternal twins of like and unlike sex, and unrelated pairs. It was found that more identical twins than fraternal twins belonged to the same Rorschach type, but the difference was small; and more twins than unrelated pairs belonged to the same type. The correlations between members of the pairs of twins in the various Rorschach scores were insignificant. Thus it appears that the temperamental differences measured by the Rorschach test are not due exclusively to differences of innate equipment.—M. D. Vernon (Cambridge, England).

4986. Shipley, W. S. Study of children of psychotic parents with respect to factors revealed on intelligence examinations. *Delaware St. med. J.*, 1935, 7.—R. R. Willoughby (Brown).

[See also abstract 5041.]

SPECIAL MENTAL CONDITIONS

4987. Balint, M. The final goal of psycho-analytic treatment. *Int. J. Psycho-Anal.*, 1936, 17, 206-216.—Toward the end of analysis certain patients may

fail to produce any new or significant material for an extended period of time, and because of a continued favorable state the patient or the analyst may mistakenly terminate the analysis. Careful observation of such cases indicates that this terminal unproductive period constitutes an essential phase in the analysis and serves to enable the patient to "work through" material already presented and understood. Insufficient "working through" results in an intensified narcissism, but carried to completion there results a development of a true object-relation adjusted to reality. The author formulates the final goal of psychoanalytic treatment as the development of the understanding of one's own nature and the long processes through which the present personality has developed, the achievement of better control of actions, an extended capacity for pleasure, and the ability for the establishment of love attitudes in object-relations.—*M. H. Erickson* (Eloise Hospital).

4988. *Bergler, E. Bemerkungen über eine Zwangsnurose in ultimis. Vier Mechanismen des narzistischen Lustgewinns im Zwang.* (Remarks on the final stages of a compulsion neurosis. Four mechanisms for deriving narcissistic satisfactions from the compulsion.) *Int. Z. Psychoanal.*, 1936, 22, 238-248.—The author mentions four techniques utilized by compulsive neurotics to achieve narcissistic satisfaction: (1) The dictates of the super-ego are carried to absurdity. The anxiety created is compensated for by a lessening of the inhibitions placed on the id impulses. (2) The patient identifies his super-ego with the analyst in order to read the inadequacies of the latter into the former. In this way the super-ego is reduced in strength. (3) Unusual compromises between the commands and the prohibitions of the super-ego are made, but in such a way as to release various infantile aggressions against the super-ego. (4) Because of their unconscious belief in the magic power of thought, compulsive neurotics occupy themselves with great projects and plans which they cannot carry out but which give them the experience of something uncanny happening.—*H. J. Wegrocki* (Worcester State Hospital).

4989. *Bergler, E. Obscene words.* *Psychoanal. Quart.*, 1936, 2, 226-248.—Information is lacking in psychoanalytic literature regarding ego condonation of obscene words, their use in mitigation of the sense of guilt, the proper oral emphasis to be placed upon them, and the significance of the passive desire of both sexes to hear them. Case material is cited to show that in the oral stage utterance of obscenities corresponds originally to proof of love for the mother, that periods of obstinate silence in childhood may signify disappointment in the mother, and that the reestablishment of speech occurs at a phallic level with the negative manifestation of abuse, which constitutes a confession of a desire to be loved in which voyeuristic and exhibitionistic impulses are gratified. Orally fixated men who passively desire to hear obscene words spoken by women thereby allay guilt feelings, since the woman is made responsible and vengeance is exacted on the mother

imago. Obscene words correspond to oral flatus and combine tendencies of the first two stages of development. They serve to express tender and hostile attitudes, and constitute a defense against the mother but also afford pleasure from the economy of inhibition and suppression. Normally, obscene words play a variable role among healthy people, particularly in fore-pleasure. Clinically, they serve in the living out of infantile megalomania in coprophilia. Finally, the disposition of the guilt feeling resulting from utterance of obscenities with their concealed fantasies is reviewed and the cynic cited as an example.—*M. H. Erickson* (Eloise Hospital).

4990. *Besterman, T. Supplement [to "Mrs. Henry Sidgwick's work in psychical research" by A. Johnson].* *Proc. Soc. Psych. Res., Lond.*, 1936, 44, 96-97.—*C. E. Stuart* (Duke).

4991. *Bibring-Lehner, G. A contribution to the subject of transference resistance.* *Int. J. Psycho-Anal.*, 1936, 17, 181-189.—Usually the transference neurosis is regarded as an active manifestation regulated by spontaneous pressure of the id and not as a reactive phenomenon regulated by reality. However, in certain fairly typical cases the analysis breaks down because of failure to overcome the patient's transference resistance. In such cases the conception of the spontaneous nature of the transference neurosis and its independence needs qualification, since it may be found that a part of reality represented in the person of the analyst may exercise a considerable degree of influence on the course and shape of the transference. Two such cases in which the analysis broke down because of transference resistance to the first analyst but which progressed favorably with a second analyst are discussed in regard to this type of transference resistance.—*M. H. Erickson* (Eloise Hospital).

4992. *Brierley, M. Specific determinants in feminine development.* *Int. J. Psycho-Anal.*, 1936, 17, 163-180.—A discussion is given of the conditions present in the earliest period of life giving rise to the factors which may be considered as specific for feminine development. Instinctual determinants are considered as contributing only a third of such factors. Particular stress is placed upon the adequate development of libido nuclei and the time relationships involved in the development of these nuclei, the intimate integration of oral and vaginal ego systems resulting in a domination by early attitudes of feminine relations to reality, and the incompleteness of feminine super-ego development resulting from the persistence of infantile oral conditions. The author concludes (1) "that the establishment of an oro-vaginal nucleus by activation of the vagina during pleasurable sucking predisposes to normal feminine development where it is not over-weighted by other factors; and (2) that the establishment of an oro-urethral nucleus under conditions which make urination a libidinal response will favor homosexual sublimation, but if this system is over-developed in relation to the oro-vaginal and oro-anal, and particularly where it is highly charged with sadism,

it predisposes to overt homosexuality; (3) that a relative predominance of the oro-anal over the orourethral systems favors heterosexuality, though heterosexual development may be imperfect if the initial sadistic charges here are high."—*M. H. Erickson* (Eloise Hospital).

4993. *Coleman, S. M.* August Strindberg: the autobiographies. *Psychoanal. Rev.*, 1936, 23, 248-273.—Strindberg had a very marked Oedipus reaction which manifested itself throughout his life. During his psychotic episode he was markedly paranoid, and there was an extreme narcissistic withdrawal with severe disintegration of the ego. This regression had homosexual auto-erotic and anal-erotic components. He showed a marked repetition mechanism, reliving constantly his Oedipus situation. During one period there was a deep anal-erotic regression with a positive value on the bowel content. Later readjustment was established by a deeper regression to the oral level. The death instinct is shown to have intruded constantly.—*L. S. Selling* (Recorder's Court, Detroit).

4994. *Cooperman, N. R.* Protein and calcium changes in serum during sleep, and rest without sleep. *Amer. J. Physiol.*, 1936, 116, 30.—"It thus appears that whereas there may be a decrease in total serum calcium during sleep and rest, the concentration of the physiologically significant ionizable calcium is unchanged after short periods and consistently increased after long periods of sleep and rest."—*T. W. Forbes* (N. Y. Psychiatric Institute).

4995. *Elmore, E.* Psychic heart disease. A study of three generations. *Psychoanal. Rev.*, 1936, 23, 286-296.—The patient in this case had very violent heart symptoms accompanied by a heart-shaped rash. Study of the case revealed that she had identified herself with her daughter, whose marriage turned out disastrously. The patient's mother's and her own marriage also were unsatisfactory. When the patient was shown her identification with her daughter the condition improved. Guilt feelings and a castration complex were evident.—*L. S. Selling* (Recorder's Court, Detroit).

4996. *Ferenczi, S.* Male and female: psychoanalytic reflections on the "Theory of Genitality," and on secondary and tertiary sex differences. *Psychoanal. Quart.*, 1936, 2, 249-260.—The genital function is discussed as regressive striving from the purely subjective standpoint of the individual to restore the antenatal state, and the suggestion is made that the act of sexual intercourse contains mnemonic phases of the catastrophe of transition from aquatic to land existence. The question is then raised concerning the manner in which the two sexes may have reacted to this geological trauma of transition. The hypothesis is advanced that with the transition from aquatic to land existence there arose a desire to restore a food- and moisture-providing organism as a shelter for the germ cells to substitute for the loss of the aquatic mode of life. In consequence of this desire both sexes probably developed a male sexual organ, initiating thereby a conflict

between the sexes in which the female succumbed but gained in compensation an understanding of how to fashion out of suffering and affliction the happiness of femininity. This resulted in turn in a greater physiological and psychological complexity of the female and hence, organically speaking, a more finely differentiated being. Sexual characteristics are discussed in relation to this hypothesis. The author concludes that the male member and its function appear as the organic symbol of the restoration of the fetal-infantile state of union with the mother and at the same time with the geological prototype thereof, existence in the sea.—*M. H. Erickson* (Eloise Hospital).

4997. *French, T. M.* A clinical study of learning in the course of a psychoanalytic treatment. *Psychoanal. Quart.*, 1936, 2, 148-194.—A study is made to determine the extent to which psychoanalytic therapy may be regarded as a learning process, that is, a process of progressive adaptation in external adjustment. The method used is a comparison of dreams and fantasies produced at different periods in the course of treatment. Particular emphasis is placed on the organization of the material in relation to the patient's immediate problems of adjustment to reality, with an accounting of the differences in adjustment from period to period in terms of the emotional events occurring in the intervals between those periods. A résumé is given of the case history to present the major problems of reality adjustment, followed by an account of the patient's initial adjustment to the analytic task. A survey is then made of the emotional events occurring in the period following this initial adjustment, and a discussion is given of the emotional aspects of the learning accomplished. An elucidation follows of the nature of the changes occurring in the patient and the process by which he arrived at them.—*M. H. Erickson* (Eloise Hospital).

4998. *Freud, S.* Inhibitions, symptoms, and anxieties. (Trans. by H. A. Bunker.) *Psychoanal. Quart.*, 1936, 5, 261-279.—Chapters 7 and 8 of *Hemmung, Symptom und Angst*, published in German, 1925. Discussion is given of infantile zoophobia in relation to anxiety and of the relationships existing between infantile and adult phobias, traumatic neuroses and infantile trauma and their accompanying manifestations of anxiety.—*M. H. Erickson* (Eloise Hospital).

4999. *Jeffreys, H.* The unconscious significance of numbers. *Int. J. Psycho-Anal.*, 1936, 17, 217-223.—"Numbers in language, folk lore and superstition appear to carry affects derived from pre-genital situations, mainly oral and urethral. The interest in odd numbers, and especially in primes, is originally phallic, while even numbers and especially those with a large number of factors are associated with ambivalent attitudes to the mother."—*M. H. Erickson* (Eloise Hospital).

5000. *Johnson, A.* Mrs. Henry Sidgwick's work in psychical research. *Proc. Soc. Psych. Res., Lond.*, 1936, 44, 53-93.—In a brief biography the writings

and other contributions of Mrs. Sidgwick to the field of psychical research are grouped chronologically.
—C. E. Stuart (Duke).

5001. Kleitman, N., Cooperman, N. R., & Mullin, F. J. *Is there a continuous curve of the depth of sleep?* *Amer. J. Physiol.*, 1936, 116, 92-93.—"On five male subjects we found, by the use of auditory stimuli, that the depth of sleep is related to the motility of the sleeper and depends upon how soon after a movement the subject is stimulated, rather than the hour of the night. After a particular movement the depth of sleep gradually increases, but tends to decrease again as the time for another movement approaches. . . . As we previously reported, movements are infrequent during the initial hours of the night's sleep, and in testing for the depth of sleep at random one is more likely to strike periods of deep sleep during these hours than later in the night. Actually, however, with reference to recorded movements of the subject, sleep is no deeper five minutes after a movement at one hour than at another, and, instead of one continuous depth of sleep curve, there are a great number of discontinuous curves between successive pairs of movements."—T. W. Forbes (N. T. Psychiatric Institute).

5002. LaFora, G. R. *Interpretaciones psicoanalíticas de los celos.* (Psychoanalytic interpretations of jealousy.) *Arch. Neurobiol.*, 1935, 15, 427-442.—R. R. Willoughby (Brown).

5003. Laforgue, R. *Ausnahmen von der analytischen Grundregel.* (Exceptions to the fundamental analytical rule.) *Int. Z. Psychoanal.*, 1936, 22, 223-228.—The fundamental rule in psychoanalytic therapy is that the patient should say everything that comes to his consciousness without distorting or inhibiting it. This rule, like many others, can, however, lead to absurdity, and should be intelligently applied by the analyst to serve its original therapeutic purpose. Too great a forcing of it and lack of tact results often only in breaking off the analysis or a diminution of the analyst's prestige in the eyes of the patient. In the case of compulsive neurotics and others manifesting character disturbances the rule should be waived, because frequently it is seized by the patient as a pretext for offering complex resistances. Strict rules mobilize the aggressiveness of the patient, and he may try to create situations in which the analyst has to force him to observe the rule in order to derive various satisfactions from the ensuing struggle.—H. J. Wegrocki (Worcester State Hospital).

5004. Lampl de Groot, J. *Hemmung und Narzissmus.* (Inhibition and narcissism.) *Int. Z. Psychoanal.*, 1936, 22, 198-222.—In every act of instinctual adjustment there is a certain impulse intensity which allows for a maximum of efficiency of the ego in its activities. An intensity above this optimum cripples the ego and its functions. Intensities below this level have the same effect. This is partially analogous to the actions of drugs which above a certain quantity become poisonous. Two factors determine the optimal character of an impulse intensity: (1) The absolute impulse intensity. This

may be disturbed by pathological or organic disorders, e.g. menopause, puberty, physical disease. (2) The relative impulse intensity. This is dependent on the relative strengths of the ego and the id impulses. If the id impulses meet too strong an ego two results are possible: (a) the ego may hold the id impulse down to a level where it allows the ego an optimal exercise of its potentialities, or (b) it may repress the impulse too strongly and thus produce functional disorders. This latter course is often adopted by the ego (1) to avoid a conflict with some other, indirectly associated id impulse, (2) to avoid a super-ego conflict, (3) to prevent a narcissistic injury.—H. J. Wegrocki (Worcester State Hospital).

5005. Lasswell, H. D. *Certain prognostic changes during trial [psychoanalytic] interviews.* *Psychoanal. Rev.*, 1936, 23, 241-247.—During the trial interview records were made of changes in the electrical conductivity of the skin, of pulse pressure and of pulse frequency by Darrow's methods. Visible movements were also noted. It is believed that absence of trend during trial interviews in the physiological indices means a long analysis. Trends toward inactivity show dependence on the interviewer. Increasing skin conductivity indicates inner tension, while decreasing conductivity signifies the presence of mobile affects which can be utilized.—L. S. Selling (Recorder's Court, Detroit).

5006. Mayer, L. *Die Technik der Hypnose.* (The technique of hypnosis.) München: Lehmanns, 1934. Pp. 193. RM. 5.—(Not seen).

5007. Müller-Braunschweig, C. *Die erste Objektbesetzung des Mädchens in ihrer Bedeutung für Penisneid und Weiblichkeit.* (The young girl's primary object cathectis and its significance for penis envy and femininity.) *Int. Z. Psychoanal.*, 1936, 22, 137-176.—Long before the young girl develops a father fixation she experiences a fate greatly different from that of a boy in her relation to the primary love object, the mother. Unlike the boy, her primary fixation is upon a member of the same sex. With growth this relation must undergo a change toward a member of the opposite sex. Hitherto the penis envy which accompanied the shift toward a member of the male sex had been explained as due to such factors as the accidental seeing of a penis, envy of the erotic potentialities afforded by the male organ, or jealousy of the greater exhibitionistic possibilities offered by the penis. The author regards these explanations as inadequate, and states that the fundamental reason for penis envy is the instinctive feeling of the young girl that her primary relationship to her mother lacks the tension and satisfaction afforded by relations with the opposite sex. As with the castration complex, penis envy is instinctive and independent of experiential factors. The latter simply reinforce already present affects.—H. J. Wegrocki (Worcester State Hospital).

5008. Rado, S. *Psycho-analysis and psychiatry.* *Int. J. Psycho-Anal.*, 1936, 17, 202-205.—Personality material ordinarily hidden or unconscious and of a most intimate nature can be revealed under the

favoring conditions of the psychoanalytic situation. The organized body of scientific thought evolved from the study of such material is characterized first by its consistent biological orientation in consequence of its basic biologic conception of living structure and dynamic functioning and its genetic principles. Second, and its intrinsically psychological feature, is its teleological frame of reference, particularly in regard to the pleasure-pain balance in mental economy and the role of sexuality. The foremost contribution of psychoanalysis to psychiatry is its advancement of the goal of increasing the individual's capacity for enjoyment and achievement.—*M. H. Erickson* (Eloise Hospital).

5009. Richmond, K. Notes on the psychological formation of Leonard communications. *Proc. Soc. psych. Res., Lond.*, 1936, 44, 17-34.—The writer holds that the hypothesis of extra-sensory perception is inadequate to explain the purposive organization of trance communications. Their study by a frankly accepted hypothesis of discarnate communication should be of greater use in discovery of facts amenable to experimental study.—*C. E. Stuart* (Duke).

5010. Richmond, K. An example of evidence of intention in book-test material. *Proc. Soc. psych. Res., Lond.*, 1936, 44, 35-52.—Three Leonard book-tests in which the same book is located from different reference points and used relevantly in different communications are discussed.—*C. E. Stuart* (Duke).

5011. Riviere, J. Eifersucht als Abwehrmechanismus. (Jealousy as a defense reaction.) *Int. Z. Psychoanal.*, 1936, 22, 177-197.—Freud distinguishes two types of abnormal jealousy, the projective and the delusional. Both of these serve as a means of protection against the super-ego. The author adds to this a type of jealousy in which the defense reaction is only secondarily against the super-ego. She cites a case in which occasions of pathological jealousy were found to be associated with the appearance of the dominant fantasy of depriving a person of an object desired by him. If this fantasy was suddenly found to be on the threshold of realization the patient defended herself against the accompanying anxiety by becoming jealous, projecting her own aggressive impulses upon others. A detailed discussion of Fenichel's criticism of this thesis follows.—*H. J. Wegrocki* (Worcester State Hospital).

5012. Salter, W. H. Supplement [to "Mrs. Henry Sidgwick's work in psychical research" by A. Johnson]. *Proc. Soc. psych. Res., Lond.*, 1936, 44, 94-96.—*C. E. Stuart* (Duke).

5013. Schilder, P. Remarks on the psychophysiology of the skin. *Psychoanal. Rev.*, 1936, 23, 274-285.—Cases are cited to show that skin symptoms are symbolic of intrapsychic changes. A case of itching where the patient associated the symptoms with lice was found to have a basis in an earlier infestation plus a libidinous structure connected with the past and present. In another case there is an organic finding in addition to the purely psychic, wherein the sweat glands were affected in addition to the itching. Certain organic conditions, such as

herpes labialis, have been produced by psychological means. Blushing is symbolic of sexual reactions and is a means by which the subject attracts attention, thereby bringing the body image of others nearer to him. Psychogenic manifestations of the skin may have conscious or unconscious meaning. They are fundamentally the same as organic neurosis; they are centrifugal and the psyche is an organic agent.—*L. S. Selling* (Recorder's Court, Detroit).

5014. Schneider, E. Gehemmte Schüler. (Inhibited pupils.) *Z. psychoanal. Pädag.*, 1936, 10, 122-129.—A chapter from *Psychodiagnostisches Praktikum für Psychologen und Pädagogen*, by the same author (Leipzig: Barth, 1936).—*R. R. Willoughby* (Brown).

5015. Schubert, H. Über die Folgen des Kaffeegenusses. (The consequences of indulgence in coffee.) Baruth/Mark-Berlin: Sarchen, 1935. Pp. 12.—*R. R. Willoughby* (Brown).

5016. Tyrrell, G. N. M. Further research in extra-sensory perception. *Proc. Soc. psych. Res., Lond.*, 1936, 44, 99-167.—Experiments in extra-sensory perception in which the subjects attempt to choose the one of five light-tight boxes in which a light occurs are reported. The apparatus described includes a mechanical selector and an automatic recorder, and permits random variation of the target box with or without the operator's knowledge of its position. The principal subject's variation in scoring with changes in technique is studied.—*C. E. Stuart* (Duke).

[See also abstracts 4789, 5029, 5032, 5038, 5054, 5096, 5110.]

NERVOUS AND MENTAL DISORDERS

5017. Allen, E. B. Menstrual dysfunctions in disorders of the personality: their nature and treatment. *Endocrinology*, 1935, 19, 255-268.—The 150 patients studied are classified according to psychiatric diagnosis as follows: schizophrenic psychoses, 54 cases; psychoneuroses, 21 cases; and 21 miscellaneous cases, mainly psychopathic personalities. It was observed that a depressive mood, physical depletion, and motor underactivity are associated with amenorrhea, while an expansive or elated mood with good physical condition and motor overactivity are associated with a profuse and prolonged menstrual period. Agitation and worry are more frequently associated with a profuse than a decreased flow.—*D. J. Ingle* (Mayo Foundation).

5018. Angyal, L. A schizophrenias gondolkozási zavarokról. (Schizophrenic thinking disturbances.) *Mag. psychol. Szle.*, 1935, 8, 366-371.—*H. J. Wegrocki* (Worcester State Hospital).

5019. Balken, E. R., Maurer, S., & Falstein, E. I. Variations in psychological measurements associated with increased feeding of vitamins A, D, B₁ and B₂ and iron in dementia praecox. *J. comp. Psychol.*, 1936, 21, 387-403.—"An experimental group of 46 adult male patients and a control group of 46 patients, equated with the experimental group on the bases

of hopeless prognosis, extreme low level of deterioration, negative physical and laboratory findings, clinical sub-classifications, histories negative for remissions and mental deficiency, and lack of the obvious signs of under-nourishment, were tested with the Grace Arthur Point Performance Scale . . . three times at intervals of six months." The vitamins indicated in the title were given to the experimental individuals as additions to the regular hospital diet. Comparison of the results of the three tests indicates superiority of the experimental group. This group gained an average of 10.95 ± 2.31 months in the second test and an average of 14.15 ± 2.21 months in the third test as compared with the first. The gains for the control group were 2.71 ± 1.29 months and 2.41 ± 1.13 months. No therapy other than that mentioned was given to either group. Bibliography.—*N. L. Munn* (Peabody).

5020. **Bersot, H.** *Les aliénés en Europe.* (The insane in Europe.) *Ann. méd.-psychol.*, 1936, **94**, 88-96.—With the exception of the Balkans and Soviet Russia, all the European countries compile statistics concerning hospitalized mental patients. In Europe as a whole, there are slightly more women than men in mental hospitals. Ireland, England, Germany, and Switzerland have the largest number of patients per 10,000. Belgium, Holland, and the Scandinavian countries come next, with smallest percents in Portugal and eastern Europe. The differences may be due to better facilities in some countries rather than to the actual number of mentally deranged. Women tend to remain in the hospitals longer than men; the number of men discharged per year is greater than the number of women. The total number of discharges is less than the admissions each year, so that the hospital population is gradually increasing. While the nomenclature for mental diseases varies with the country, the diagnoses can be grouped for comparisons. Examples are given for the cyclothymic and syphilitic groups. The former were most frequently diagnosed in France and the latter in Hungary. Cyclothymic psychoses were more frequent in women than in men (62% to 38%), but syphilitic psychoses were more frequent in men than in women (74% to 26%).—*M. B. Mitchell* (N. Y. A., Concord, N. H.)

5021. **Billström, J.** *Psykisk hygien och filmkontroll.* (Mental hygiene and film control.) *Svenska Läkartidn.*, 1936, **33**, 950-955.—The article gives the history of the development of film censorship in Sweden since its introduction in 1911. The dividing line between children and adults is 15 years of age. Pictures must not violate general laws or good morals, and must not provoke coarseness, undue excitement, or confusion of concepts of law and order. Pictures which exhibit scenes of shock, suicide, or crime must not be accepted. Pictures which might be detrimental to friendly relationships with foreign powers are prohibited (such as the Edith Cavell film). In 1917 public showing of hypnotic experimentation was prohibited. The State Bureau of Investigation of Films has three permanent members,

all Ph.D.'s, with the addition of one representative from the army, one from the navy, one woman representing literary-pedagogical viewpoints, and a consulting psychiatrist. As an example of the work of the Bureau, in 1933 4293 films were "investigated" (reference to words such as "censor" or "censorship" are carefully avoided); out of this number, 18 films were entirely rejected and 766 were allowed to be shown to adults only. The mental hygiene aspects of movies are described.—*M. L. Reymert* (Mooseheart Laboratory for Child Research).

5022. **Birnbaum, K.** *Die Welt des Geisteskranken.* (The world of the insane.) Berlin: Springer, 1935. Pp. 157. RM. 4.80.—*R. R. Willoughby* (Brown).

5023. **Brander, T.** *Vem är imbecill?* (Who is feeble-minded?) *Finska Läkaresällsk. Handl.*, 1936, **79**, 409-420.—The sterilization law of Finland of June 1935 defines an imbecile as "a person whose mental development does not proceed beyond the stage of that of a 14-year-old child." Brander criticizes this definition, offering a general review of definitions of feeble-mindedness, and concludes that the definition formulated by the Royal College of Physicians and Surgeons in London and adopted by the English Royal Commission on Mental Deficiency is the most workable and satisfactory one. Bibliography.—*M. L. Reymert* (Mooseheart Laboratory for Child Research).

5024. **Cameron, D.** *Studies in depression.* *J. ment. Sci.*, 1936, **82**, 148-161.—Experiments on depressed patients showed that the rate of fluctuation of an ambiguous figure varies inversely with the severity of the depression, and that a strong stimulus, prolonged and ultimately painful, has a general inhibitory effect. An experimentally produced inhibition resembling that of depression was obtained in guinea pigs through the use of a prolonged frustration stimulus. This was signalized by loss in weight and lowered respiratory rate. No direct evidence was gotten about "psychic pain" or the mechanisms of recovery. The author suggests that such depressive symptoms as retardation, dearth of ideas, lack of concentration, weakness, indecision, reduction of secretions, and slowing of peristaltic movements, are all part of a generalized inhibition associated with abnormal concentration on some situation felt to be dangerous or harmful.—*C. J. Herrick* (Pennsylvania).

5025. **Cox, R. A.** *Congenital head-nodding and nystagmus. Report of a case.* *Arch. Ophthal.*, Chicago, 1936, **15**, 1032-1036.—Differential diagnosis for spasmus nutans and congenital head-nodding and nystagmus is outlined. Spasmus nutans tends to appear during the first year and is followed by recovery at an early age; head movements and eye movements do not appear to be related; head-nodding precedes onset of the nystagmus, which may be monocular. In the congenital type, the condition appears at birth and persists through life; head movements seem to compensate for eye movements; both eyes are always involved. Cessation of head movements when the patient is not fixating and their almost immediate reappearance with an effort to

fixate indicate their compensatory nature. Vision may be nearly normal—6/7.5 in both eyes with correction in the case presented. The family history here showed inheritance of the grandfather's defect by three daughters among his twelve children; three grandchildren, two of them boys, were also affected.—*M. R. Stoll* (Mass. Eye & Ear Infirmary).

5026. **Dayton, N. A.** The first year of the new standard nomenclature of diseases in Massachusetts mental hospitals. *Amer. J. Psychiat.*, 1935, 92, 589-609.—An historical sketch of statistics on mental disease as developed by the American Psychiatric Association and the methods used in the adoption of the new psychiatric classification are given. The figures for the numbers of cases in the 120 groups of the classification are given. The twelve main groups of the detailed classification are discussed from the viewpoint of numbers and percentages occurring among the admissions, discharges, deaths, resident population and patients out of institutions, for the year 1934. High proportions of discharges are found in cases without psychosis, psychoses due to intoxication, and undiagnosed psychoses; high proportions of death in cases due to disturbances of metabolism, etc., circulation, infection, and unknown or hereditary causes; high proportions of resident population come from cases due to convulsive disorder, of psychogenic origin, and without clearly defined tangible cause.—*R. Goldman* (Worcester State Hospital).

5027. **Dayton, N. A.** A new method of calculating discharge rates in mental diseases, with special consideration of the age factor. *New Engl. J. Med.*, 1935, 213, 841-849.—The paper points out some fundamental errors in the present method of computing discharge rates based upon discharges per hundred admissions. A new method is outlined for calculating discharge rates in first and readmissions, by psychosis and age. The new method is illustrated by concrete application.—*J. Brockwell* (Brown).

5028. **Deutsch, A.** The cult of curability, its rise and decline. A page from psychiatric history. *Amer. J. Psychiat.*, 1936, 92, 1261-1280.—An advance printing of a portion of one of the chapters of the author's forthcoming book. The origin of the belief that "at least 90% of all cases of insanity can be cured" and the rise of hospitals for the insane, together with the statistical maneuvers of the time, and the competition between hospitals in respect to their numbers of "cures" are discussed.—*R. Goldman* (Worcester State Hospital).

5029. **Dreyfuss, D. K.** Über die Bedeutung des psychischen Traumas in der Epilepsie. (The significance of the psychic trauma in epilepsy.) *Int. Z. Psychoanal.*, 1936, 22, 249-273.—In the majority of cases of epilepsy where the disease is evident in childhood the kernel of the illness is quite mature before the period of latency and requires only an impulse overflow to manifest itself in its typical form. The evidence for a purely organic interpretation of epilepsy is negative, and Gröhle states that it is difficult to conceive how any type of brain

irritation could produce the manifold epileptic symptoms. The author follows Ferenczi, Stekel and Reich in ascribing a psychological origin to the epileptic attack. Epilepsy represents a conversion mechanism based on fixations in the early narcissistic stages. The homology between the symptoms of rage in the infant and the epileptic attack of the adult is stressed. On the neurophysiological side, the clinical picture of the epileptic attack is explained as due to an overflow of sadistic libido from the motor into the vegetative system.—*H. J. Wegrocki* (Worcester State Hospital).

5030. **Dworkin, S., Bourne, W., & Raginsky, B.** Conditioning neurosis treated by sedatives. *Amer. J. Physiol.*, 1936, 116, 40.—"Two dogs in the course of conditioning experiments developed a permanent neurosis of the inhibitory type. . . . On these particular animals we studied the effects of five drugs (alcohol, nembutal, avertin, sodium amytal, sodium bromide). . . . The effect of sodium bromide, administered daily, was quite different. Within ten days the neurosis subsided and differentiation was re-established. Administration now ceased. At the end of three months the animals were still as good as normal. We have therefore confirmed Pavlov in showing that sodium bromide has an action on the higher centers that is much more permanent than any of the other drugs."—*T. W. Forbes* (N. Y. Psychiatric Institute).

5031. **Ferrio, C.** Il comportamento del tremore del parkinsonismo postencefalitico sotto l'influenza di sostanze ad azione farmacodinamica. Contributo allo studio dell'innervazione vegetativa dei muscoli striati. (The behavior of parkinsonian postencephalitic tremor under the influence of substances with a pharmacodynamic action. Contribution to the study of the vegetative innervation of the striate muscles.) *Riv. neurol.*, 1933, 6, 365-388.—(Biol. Abstr. X: 8274).

5032. **Focher, L., Stekel, Adler, Jung és Frank lélektana.** (Psychology as taught by Stekel, Adler, Jung and Frank.) *Mag. psychol. Szle*, 1935, 8, 25-34.—Stekel holds, in opposition to Freud, that the most important factor in psychoneurosis is the unfounded feeling of guilt. Adler believes that psychoneurosis is the loss of self-confidence, the symptoms being called into existence by the necessity of explaining away failures. Jung recognizes as causes of sickness psychic factors which have been brought into being by personal experience, but he sees these factors as only part of the cause, and as such to be sought only in cases of a certain kind of psychical make-up. For Frank, neuroses are based on conditioned reflexes which are reinforced by the patient's fight against them. The struggle precipitates the symptoms. These disease-causing reflexes disappear when the person gives up his resistance to the symptoms and becomes passive and unconcerned. (Résumé in German.)—*H. J. Wegrocki* (Worcester State Hospital).

5033. **Gordon, M. B., & Kuskin, L.** Mental retardation associated with endocrine and no-

endocrine conditions. *Endocrinology*, 1935, 19, 561-571.—In a study of 958 children, 666 were found to be mentally retarded. 40% of the retarded group showed signs of endocrine disorders. Of the total group 529 children showed evidence of an endocrine involvement. 50% of the endocrine group had IQ's below 80. Mental retardation was most frequently associated with the endocrine diseases in the order named: childhood myxedema, hypothyroidism, adiposogenital dystrophy, and anterior pituitary growth deficiency. Of the 492 children in the non-endocrine group 400 had IQ's below 80. The high incidence of feeble-mindedness in these groups is partly explained by the fact that numbers of the children had been referred for clinical investigation of a mental retardation.—D. J. Ingle (Mayo Foundation).

5034. Gordon, M. B., Kuskin, L., & Avin, J. Organotherapy in mental retardation associated with endocrine and non-endocrine conditions. *Endocrinology*, 1935, 19, 572-578.—In a study of 317 mentally retarded children treatment was given which included organotherapy, remedial measures of associated disabilities, proper diet, educational measures, and improvement of social conditions. In 155 endocrine cases there was a tendency for the IQ to improve in 45% of the group. In 162 non-endocrine cases which included patients with mongolism, birth injury, spastic paraparesis, post-encephalitis, microcephalus, hydrocephalus, epilepsy, and congenital lues there was improvement of the IQ in only 1.2% of the cases. The authors attribute the mental improvement noted in the endocrine group to the organotherapy.—D. J. Ingle (Mayo Foundation).

5035. Kaiser, J. H. *Nervöse und seelische Störungen*. (Nervous and mental disturbances.) Leipzig: Hörlold, 1936. Pp. 55.—R. R. Willoughby (Brown).

5036. Kaye, S. *Über Differentialdiagnose zwischen Schizophrenie und Psychopathie*. (The differential diagnosis between schizophrenia and psychopathy.) Berlin: Pfau, 1936. Pp. 30.—R. R. Willoughby (Brown).

5037. Khvilivitskii, T. Ya. *Vegetativnaya reak-tivnost pri mielitakh*. (Vegetative reactions in myelitis.) *Trud. Inst. Izuch. Mosga Bekht.*, 1936, 6, 87-104.—The conclusions from 9 cases of transverse myelitis are as follows: Diffuse lesions of the cord markedly decrease but do not abolish vegetative activity. Its chief characteristic in myelitis is the reaction to threshold stimuli, which is either intense or absent, apparently depending on changed conditions of conduction. The threshold is determined not by the strength of the stimuli but by their psychological significance, i.e. the attitude toward them. The vegetative impulses pass through the white rami into the cord above the lesion, and emerge along the gray rami. In cord lesions causing only motor disturbances, vegetative reactivity of the corresponding areas of skin is characterized by sympathetic hyperfunction.—M. E. Morse (Baltimore).

5038. Laforgue, R. *A contribution to the study of schizophrenia*. *Int. J. Psycho-Anal.*, 1936, 17, 147-162.—A report is given with detailed discussion of the psychotherapeutic procedure and the course of improvement in a patient of neuropathic heredity suffering from schizophrenia and showing symptomatology of affective disturbances, suicidal attempts, flexibilitas cerea, negativism, mutism, hallucinations, constipation and tachycardia. In discussing the interpretations made of the various symptoms special attention is given to the part played by affectivity in the development of the personality.—M. H. Erickson (Eloise Hospital).

5039. Lange, J. *Kurzgefasstes Lehrbuch der Psychiatrie*. (A short textbook of psychiatry.) Leipzig: Thieme, 1935. Pp. 254. RM. 10.—R. R. Willoughby (Brown).

5040. Levin, M. On the causation of mental symptoms: an inquiry into the psychiatric application of Hughlings Jackson's views on the causation of nervous symptoms, with particular reference to their application to delirium and schizophrenia. *J. ment. Sci.*, 1936, 82, 1-27.—R. R. Willoughby (Brown).

5041. Ley, J., & Tordeur, G. W. *Alexie et agraphie d'évolution chez des jumeaux monozygotiques*. (Developmental alexia and agraphia in monozygotic twins.) *J. belge Neurol. Psychiat.*, 1936, 36, 203-222.—The case history of identical twins suffering from alexia and agraphia, as well as their family history, is given in great detail with tables, charts and reports of tests and examinations made. The patients were boys, ten years old, with a mental retardation of three years. The authors believe that this disorder is largely independent of general backwardness and should be considered a "congenital word blindness," a disorder specifically limited to the psychic processes necessary for the acquisition of written language. In view of the fact that the condition occurred in identical twins, that two cousins suffered from the same disorder, and that there was much mental debility and delinquency among the paternal relatives, the authors believe that this defect is of hereditary origin. Views are expressed regarding the cerebral areas that may be involved in such disorders. Bibliography of 36 titles.—H. Sys (Cornell).

5042. Myasishchev, V. N. *Zadachi i metody psikhofiziologicheskogo issledovaniya vegetativnykh funktsii pri zabolеванийakh nervnoi sistemy*. (Problems and methods in the psychophysiological study of the vegetative functions in diseases of the nervous system.) *Trud. Inst. Izuch. Mosga Bekht.*, 1936, 6, 5-30.—The problems include the characteristics, dynamics and range of vegetative disturbances in relation to the localization and nature of the lesion, also their connection with the personality; the purpose of the experiments is to determine the relative roles of lesions at different levels on the entire organism and the effects of a given psychic condition on local reactions with variously located lesions. The best method for these purposes is the psychogalvanic reflex.—M. E. Morse (Baltimore).

5043. Myasishchev, V. N., & Panov, A. G. O vegetativnoi reaktivnosti i ee strukture pri kortikalnykh porazheniyakh s sindromom epilepsii dzheksona. (Reactions of the vegetative nervous system in Jacksonian epilepsy.) *Trud. Inst. Izuch. Mozga Bekht.*, 1936, 6, 31-62.—15 cases of Jacksonian epilepsy were studied according to the principles given in the preceding article. The convulsions caused a progressive fall in reactivity on the affected side. In sensory disturbances vegetative reactivity is reduced on the hypoesthetic and increased on the hyperesthetic side. No further interrelations were established between craniospinal and vegetative reactions. Vegetative insufficiency is greatest under conditions of mental strain (counting, etc.), and differences between the two sides of the body decrease in proportion to emotion. The "profiles" of vegetative reaction are determined by the subject's psychic state. Indifference is associated with weakly differentiated reactivity; dullness, with low reactivity on both sides of the body, which is accentuated by emotion; while predominance of cortical activity, which implies unimpaired intelligence and personality, gives maximum reactivity.—M. E. Morse (Baltimore).

5044. Neustatter, W. L. Some methods and problems of psychotherapy. *J. ment. Sci.*, 1936, 82, 47-62.—R. R. Willoughby (Brown).

5045. Noyes, A. P. A textbook of psychiatry. (2nd ed.) New York: MacMillan, 1936. Pp. 329. \$2.50.—This edition of a textbook intended primarily for the nursing profession has been completely revised, with the addition of new chapters and the inclusion of psychiatric advances made since the first edition. Chapter I deals with the general problem of psychiatry and psychiatric nursing; the next four chapters are devoted to the psychological considerations involved in psychiatry. The next twenty-three chapters deal with personality types, the nature and causes of mental disorders, symptomatology, the problem of the classification of mental disorders, the various types of mental disease, psychopathic personalities, and mental deficiency. The remaining four chapters are devoted to psychiatric nursing, psychoanalysis, mental hygiene, and the nurse and her profession. A glossary and an index are appended.—M. H. Erickson (Eloise Hospital).

5046. Reitmann, F. A schizophrencias új szóképzései. (Schizophrenic neologisms.) *Mag. psychol. Szle.*, 1935, 8, 347-352.—Neologisms are a form of creative activity. Two main factors determine their etiology: (1) the normal reactions of the psyche to the illness itself; neologisms in this group are similar to those of children and represent an attempt at the preservation of an integrated personality; (2) purely pathological moments, which determine neologisms based on clang associations, dream mechanisms and stereotypy. (Résumé in German.)—H. J. Wegrocki (Worcester State Hospital).

5047. Rian, E. Tuberkulose og sinnsykdom. (Tuberculosis and mental disease.) *Tidsskr. norske*

Lægeforen., 1936, 56, 701-714.—The article discusses the general relationship between tuberculosis and mental disease, especially schizophrenia, and gives an account of conditions in this regard in one particular Norwegian institution. Among the various classifications of mental diseases it was found that tuberculosis attacks almost exclusively the schizophrenic and imbecile groups, and that on the whole tuberculosis particularly attacks patients in which mental deterioration has gone farthest. It seems as if lung tuberculosis may be looked upon as cause of activation of a schizophrenic disposition, and the fact is noted that in lung tuberculosis the thyroid gland is generally enlarged. (Harbitz found this to be true in 60% of all cases.) This might be an indication that tubercular toxins may work by way of the endocrine system in an activating manner. Diagnosis of the disease is generally made too late. It is recommended that all tubercular patients should be isolated in separate wards. Bibliography.—M. L. Reymert (Mooseheart Laboratory for Child Research).

5048. Steegmann, A. T., & Karnosh, L. J. Infantile amaurotic family idiocy, with megalencephaly and cerebellar atrophy. *Amer. J. Psychiat.*, 1936, 92, 1413-1424.—A report of a case added to the already large literature on the subject but reported in detail for several reasons, among which is the fact that "along with the brain, the eye and optic nerve were obtained at autopsy, making it possible to study the pathological picture of the entire visual system from the retinae to the striate cortex." A detailed histological report is given.—R. Goldman (Worcester State Hospital).

5049. Strickstrock, M. Die Sterilisierung bei schwachsinnigen Frauen. (Sterilization of feeble-minded women.) Bonn: Schönershoven, 1934 (publ. 1936). Pp. 41.—R. R. Willoughby (Brown).

5050. Thaustein, J. Über den ersten Versuch, Psychosen zu klassifizieren. (On the first attempt to classify psychoses.) Postberg: Bottrop, 1936. Pp. 25.—R. R. Willoughby (Brown).

5051. Uchimura, Y. "Imu," a malady of the Ainu. *Lancet*, 1935, 228, 1272-1273.—R. R. Willoughby (Brown).

5052. Villalonga, E. I. Delimitación actual del grupo de las esquizofrenias. (Present delimitation of the group of schizophrenias.) *Arch. Neurobiol.*, 1935, 15, 569-591.—A critical review of the works of Morel, Haecker, and Kahlbaum in relation to Kraepelin's conception of dementia praecox. We have no unitary conception of schizophrenia because of the various points of view. Some investigate constitution and heredity, others disposition and character. A group of schizophrenic processes are conditioned genotypically. This group is the center of a constitutional schizophrenic circle. The reduction of this circle to a series of constitutional elements, clinically differentiable, is the point of departure for the delimitation of schizophrenia. Schizophrenia is not always conditioned by the genotype. Bibliog.

raphy.—R. M. Bellows (Occupational Research Program).

5053. Wall, J. H. **A study of alcoholism in men.** *Amer. J. Psychiat.*, 1936, 92, 1389-1401.—A report on the backgrounds of 100 patients studied over a period of 14 years in a mental hospital.—R. Goldman (Worcester State Hospital).

5054. Weigert-Vowinckel, E. **A contribution to the theory of schizophrenia.** *Int. J. Psycho-Anal.*, 1936, 17, 190-201.—The inter-relationships of the psychiatric and the psychoanalytic approaches to schizophrenia, the former dealing with the ego aspect and the latter with the id aspect, are discussed. Consideration is then given to the study of schizophrenic phenomena from the ego aspect of the psychomotor manifestations in the catatonic forms of dementia praecox, and a detailed discussion is given of the various schizophrenic attitudes, particularly posturing, stereotyped movements, echolalia, echopraxia, catalepsy and the catatonic attitudes of stupor, automatic obedience and negativism. The author feels that catatonic attitudes are dependent upon affects and that disturbances of affect in schizophrenia result from automatized schizophrenic attitudes becoming rigid, rendering the schizophrenic personality incapable of being moved by current affective experiences with a resulting increased adhesiveness of the narcissistic libido. He feels that therapy must overcome the resistance expressed in automatic attitudes which represent a compromise between instinctual gratification and inhibition, and which serve to curtail the ego's jurisdiction, thus preventing the ego from developing effectively in free communication with the id. The author comments freely on the other studies contained in the literature.—M. H. Erickson (Eloise Hospital).

[See also abstracts 4796, 4888, 4903, 4927, 4951, 4953, 4986, 5085, 5097, 5109, 5141, 5181.]

PERSONALITY AND CHARACTER

5055. Boda, I. **[The basic biopsychic personality characteristics.]** *Mag. psychol. Szle*, 1934, 7, 23-66.—The author proposes to make an inventory of all possible personality characteristics and to use it as a basis for the creation of a typology. The psycho-biological substrate of the personality traits chosen is stressed. The somatic, the purely psychological and the non-personal (e.g. *geisteswissenschaftlich*) approaches are criticized for their inadequacy, and a picture of the psychosomatic constitution as labile, unstable and environment-adapted is drawn. (Résumé in German in *Mag. psychol. Szle*, 1935, 8, 455-461.)—H. J. Wegrocki (Worcester State Hospital).

5056. Brentlinger, W. H. **The emotional stability of the transient.** *J. appl. Psychol.*, 1936, 20, 193-207.—"The percent of significant responses (on the Woodworth P. D. sheet) is greater for the transient group on certain questions, which may be an indication of the motivation of transients. The transient is characterized by frequent change of interests, not knowing what he wants to do next, and restlessness.

There is some evidence that the younger transients are more motivated by feelings of insecurity and unhappy home environments."—R. S. Schultz (Psychological Corporation).

5057. Burks, B. S. **Personality theories in relation to measurement.** *J. soc. Psychol.*, 1936, 7, 140-150.—Present theories of trait measurement and the concepts of trait specificity fail to demonstrate the real existence of the traits tested. The ability to measure a trait gives no evidence that this trait bears any significant or tangible relation to personality or personal performance. Several lines of evidence suggest that the important factor is the organization of traits, the existence of a nucleus or radix with respect to which each trait is to be valued. Such evidence is to be found, for example, in teachers' predictions of children's behavior; such predictions were found to agree among themselves but not to coincide with the subsequent behavior. Examination of this lack of correspondence revealed behavior congruent with the intention of the prediction although lacking in specific correspondence.—E. B. Newman (Swarthmore).

5058. Conway, C. B. **A new scoring apparatus for the Bernreuter personality inventory.** *J. appl. Psychol.*, 1936, 20, 264-265.—This is a cardboard strip device which allows for the scoring of six traits simultaneously, yields a saving of 12 minutes, and reduces errors from .8 to .8 per paper.—R. S. Schultz (Psychological Corporation).

5059. Gildea, E. F., Kahn, E., & Man, E. B. **The relationship between body build and serum lipoids and a discussion of these qualities as pyknophilic and leptophilic factors in the structure of the personality.** *Amer. J. Psychiat.*, 1936, 92, 1247-1260.—Individuals corresponding in most respects to Kretschmer's description of the pyknic in physique comprised one group, and slender individuals, the leptosomes, comprised the other group studied. The serum lipoids (total fatty acids and cholesterol) were consistently higher in the individuals of pyknic build than in the men of the leptosomal physique. Women studied in the same manner showed differences which were not clear-cut; the serum fatty acids tended to be higher in the pyknic women. The "findings suggest that a relationship exists among at least three of the morphological, biochemical and functional factors that make up the person who represents a relatively pure form of either the pyknic or the leptosomal physique."—R. Goldman (Worcester State Hospital).

5060. Hamilton, J. A., & Shock, N. W. **An experimental study of personality, physique, and the acid-base equilibrium of the blood.** *Amer. J. Psychol.*, 1936, 48, 467-473.—The problem of the present study was to investigate the correlation between the acid-base balance of the body and personality as measured by various paper-and-pencil tests. S's were 137 male freshmen and sophomores at the University of California. The percentage of red cells in the blood, the pH of the serum, and the carbon dioxide content were determined in the laboratory. The S's were given the Northwestern University test

of introversion-extraversion, a shortened form of Thurstone's personality inventory, and a rating made by themselves on a 7-point scale for introversion-extraversion. Various measurements of physique were made: height, weight, transverse and sagittal chest diameters, trunk height, chest, abdomen, and hip circumferences, and leg length. The r 's among these various factors range from -.82 (between pyknic habitus and vital capacity) to .43 (between self-rating and rating on Northwestern introversion-extraversion test). 41 out of 73 correlations (including reliability correlations) are between -.10 and .10. The authors conclude on the basis of this study that "small but consistent correlations indicate that an instable personality, as determined by the procedures used in this study, is associated with respiratory irregularity, usually in the direction of sub-breathing. No large or consistent correlations were found between morphological indices and the measures of personality used in this study. No large or consistent correlations were found between morphological indices and the acid-base equilibrium of the blood. The nature of the relationships found tends to indicate that acid-base factors, in so far as they are related to personal characteristics, may be the result rather than the cause of these characteristics."—D. E. Johannsen (Skidmore).

5061. Klages, L. *Die Grundlagen der Charakterkunde.* (The foundations of character study.) (7th-8th ed.) Leipzig: Barth, 1936. Pp. 232. RM. 6.60.—R. R. Willoughby (Brown).

5062. Kretschmer, E. *Körperbau und Charakter. Untersuchungen zum Konstitutions-Problem und zur Lehre von den Temperamenten.* (Physique and character. Investigations on the constitution problem and on the doctrine of the temperaments.) Berlin: Springer, 1936. Pp. 243. RM. 13.60.—R. R. Willoughby (Brown).

5063. Kretschmer, E. *La structure de la personnalité dans la psychothérapie.* (The structure of personality in psychotherapy.) *Scientia, Bologna*, 1936, 59, 278-279.—The mechanisms and dispositions laid down by heredity do not furnish sufficient data for understanding a given personality; an important part of the development of the individual is the transformation of these hereditary bases under the influence of the environment. Consequently mental disorders known to be fundamentally physiogenic are to some extent amenable to psychotherapy. Moreover, even the physiological constitution of the individual is in a state of continual change; and many neuroses—especially those of critical life-periods—may be seen as the result of disturbed synchronization between the physiological and psychological developments.—D. W. Chapman (Recorder's Court, Detroit).

5064. Nebrash, J. A. *The reliability of questions in the Thurstone personality schedule.* *J. soc. Psychol.*, 1936, 7, 239-244.—Reliability is measured in terms of test-retest correspondence for three groups totaling 67 subjects. Mean scores shift significantly, but a high correlation between test

and retest was found. The reliable items are those with high incidence. Thus the selection of items for average incidence gives a series of items each having small reliability. Scales using a small number of such items must be correspondingly unreliable. Poorly adjusted subjects tend to give less reliable scores. Some geographical differences in group scores are mentioned.—E. B. Newman (Swarthmore).

5065. Noszlópi, L. *Az egyén végső tulajdonságainak kérdése.* (The problem of the basic attributes of the personality.) *Mag. psychol. Szle*, 1935, 8, 420-425.—H. J. Wegrocki (Worcester State Hospital).

5066. Sailer, R. C. *Personality and everyday behavior.* Peiping: San Yu Press, 1935. Pp. x + 334.—The general topics of discussion are personal maladjustments and growth of personality. Chapter I discusses the causes of human actions. The author assumes that every act has its causes and considers the study of personality as largely a search for the underlying causes of actions as well as the relationships between them. Chapter II discusses what human nature is. Here again the author assumes that there are certain final wants which are common to human beings in general, in addition to the various ways of satisfying wants, which differ enormously among different peoples, different individuals, and for the same individual at different occasions. Chapter III discusses the ways of meeting difficulties in life. Chapter IV discusses how ways of satisfying can be changed. The author rejects both the "field of grass" theory and the "association" theory of learning and insists that learning be looked upon as trying to find better ways of satisfying wants. It is argued that this "satisfaction theory" would give a picture of human nature which takes account both of outward behavior and of inner feeling. Chapters V and VI discuss the problems of happiness and unselfishness, both in dialogue form. Chapter VII discusses the ways of satisfying the self, and Chapter VIII the problem of sex. The author regards sex as the strongest force in the whole personality, and points out that most of the mental maladjustments and conflicts which make people unhappy are connected with sex. A happy person should lead an integrated sex life. Chapter IX discusses a well-adjusted personality. It is pointed out that in order to attain a strong and happy life prepared to meet and overcome whatever difficulties threaten it, one needs (1) a philosophy of life, (2) varied interests, and (3) a habit of decision. Chapter X discusses children. Chapter XI discusses the individual and the group. The author suggests that the most important word for describing any person's conduct is the word "proper." It includes the idea of right and good sense, and often includes beauty as well. To act properly is to act like a certain kind of person. Chapter XII discusses social progress. The author advocates that a "group idea," instead of the majority idea, the compromise idea, the uniformity idea, or the old representative idea, should be worked out intelligently for increasing use. Chapter XIII discusses the standards of character. It is suggested

that the goals for the developing personality are freedom, self-control or responsibility, maturity, objectivity, participation, integration, understanding, happiness, reality, and self-regulation. However, no one of these goals may be attained completely without attaining all others as well. Chapter XIV discusses the dangers in analyzing personality. It is pointed out that although we seem to find a good many dangers in the study of personality, when we look at each one closely it will turn out to be a criticism, not of the subject itself, but of the failure of people to take it seriously enough and to go into it thoroughly. Mental hygiene does not make bad men good. It helps men who want to be good to live effective lives, instead of getting in their own way and fighting against themselves; of course it cannot take a man with no purpose in life and give one to him. The book also includes "A Suggestion For Self-Study" and 22 "Extracts From Case Studies."—C.-F. Wu (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

5067. Sears, R. R. **Experimental studies of projection: I. Attribution of traits.** *J. soc. Psychol.*, 1936, 7, 151-163.—The concept of projection was submitted to experimental investigation by the use of rating scales. 97 college students, living in three fraternities, were asked to rate themselves and their house-mates on stinginess, obstinacy, disorderliness and bashfulness. Agreement between a person's self-rating and his ratings of others indicated projection. Agreement between self-rating and others' ratings of him indicated insight. Persons lacking in insight showed a positive tendency to attribute their trait characteristics to others. Persons possessing insight showed a slight tendency in the opposite direction, that is, to undervalue their own objectionable traits in others. Lack of insight appeared to be specific for each trait, and it was coupled with a high rating for reprehensibility of that trait.—E. B. Newman (Swarthmore).

5068. Siemens, O. **Menschenkenntnis und Menschenbehandlung.** (Knowledge and management of people.) Homburg: Siemens-Verl.-Ges., 1935. Pp. 305.—R. R. Willoughby (Brown).

5069. Spearman, C. E. **Coordination of research on personality.** *C. R. VIII Conf. int. Psychotech.*, 1934, 46-52.—Factor theory is dangerous without a psychological foundation. Psychology should formulate hypotheses to be checked by mathematics. Mention is made of a study in progress of 97 tests administered to 1000 children.—H. E. Burtt (Ohio State).

5070. Wagner, L. **Transzvertáló lelkijelenségek.** (The conversion of certain psychological phenomena.) *Mag. psychol. Szle.*, 1935, 8, 239-281.—Certain psychological phenomena possess the quality of being able so to change their functional properties that they suddenly assume a character diametrically opposite to their previous one. This "conversion" is a special type of psychological change, a psychic elasticity, as it were, which is different from such factors as development, adaptation or inhibition.

Its biological purpose is to insure a more harmonious intrapsychic integration. (Résumé in German.)—H. J. Wegrocki (Worcester State Hospital).

5071. Wang, Y. J. [On the scientific methods of character diagnosis.] Shanghai: Commercial Press, 1935. Pp. x + 247. \$60 mex.—This book deals from the pedagogical point of view with the use of scientific methods in character diagnosis to ascertain the individuality of the child, and by administering appropriate guidance to amend his mental and physical deficiencies as well as to correct his improper behavior and habits, thereby increasing educational efficiency. Chapter I discusses the significance of character diagnosis in education. Chapter II discusses character diagnosis from the physiological and behavioristic approaches. Chapter III deals with eidetic studies and performance and graphological analysis. Chapter IV deals with the synthetic studies of character, such as construction of psychograms, Jung's psychological types of introversion and extraversion, and Spranger's six life-forms. Chapter V discusses the "organized" character tests. Chapters VI-XI deal with the special character traits, as well as the social, moral, interest, emotional, and temperamental tests. Chapter XII concludes the book by emphasizing that in order to achieve the object in view the character diagnosis or testing must be followed by some appropriate educational guidance. An appendix reviews and discusses Downey's will-temperament types and the validity of and factors influencing the will-temperament test. The material is freely drawn from western and Oriental sources.—C.-F. Wu (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

[See also abstracts 4985, 4993, 5076, 5080, 5114, 5160, 5170, 5181.]

SOCIAL FUNCTIONS OF THE INDIVIDUAL

5072. Abrams, R. H. **The bishops of the Protestant Episcopal Church and birth control.** *J. soc. Psychol.*, 1936, 7, 229-236.—A comparison of the recorded vote of 82 clergymen on a resolution favoring birth control with such factors as marital status, size of family, birthplace, etc. Possible positive relations were found between votes and (1) schooling, (2) geographical mobility.—E. B. Newman (Swarthmore).

5073. Aizawa, M. **An experimental study of the consciousness of tonality. II. On minor tonality.** *Tohoku psychol. Folia*, 1935, 3, 205-214.—The problem was how we perceive the tone relation of minor tonality, and the relation between major and minor tonality, in a naïve attitude. The result of the melody-singing experiment was almost the same as that for major tonality, and, like the relation, that of analogy was clear; but almost no relation of symmetry or of a parallel key could be found.—M. Aizawa (Sendai).

5074. Bischler, W. **Contributions psychologiques et psychanalytiques à l'étude de la religion.** (Psychological and psychoanalytic contributions to the study of religion.) *Mag. psychol. Szle.*, 1935, 8, 323-347.—

The author critically reviews the theories of Nietzsche, Freud, Janet, Rank, Bergson, James and Jung, on religion. The first three writers, according to him, do not take into account, as do the last three, the fundamental dynamic reality involved in religion, but simply analyze some of its component elements. Rank is intermediate between the two approaches, utilizing the psychoanalytic method of analysis but approximating Jung in his emphasis on religion as an expression of the will-to-live.—*H. J. Wegrocki* (Worcester State Hospital).

5075. Cabot, R. C. **The meaning of right and wrong.** New York: Macmillan, 1936. Pp. xii + 469. \$2.50.—A revised and somewhat enlarged edition of the work which was published in 1933 (see VIII: 1211).—*D. Shakow* (Worcester State Hospital).

5076. Dénes, T. **A tragikus lélekalkat.** (The structure of the tragic soul.) *Mag. psychol. Szle*, 1935, 8, 137-153.—The main duty of a psychology of creativeness is to find the springs motivating the production of a particular work of art. The author stresses and attempts to analyze the fact that the conviction that life possesses an underlying tragic meaning forms one of the fundamental drives in creative endeavor. (Résumé in French.)—*H. J. Wegrocki* (Worcester State Hospital).

5077. De Pina, L. **Tatuagens.** (Tattoo marks.) *Arch. Repart. Antrop. crim., Psicol., exp., Ident. civ. Pôrto*, 1931, 1, 147-156.—De Pina gives some references to the literature on tattooing and a number of reproductions of various designs found on criminals.—*T. V. Moore* (Catholic University).

5078. Dodd, S. **A theory for the measurement of some social forces.** *Sci. Mon.*, N. Y., 1936, 43, 58-62.—The proposal is made to define the concept of social "forces," "acceleration" of a social process, and "momentum" of a social movement as compounds of basic concepts which can be objectively observed, verified and measured. Systems of equations developed for this purpose are presented.—*O. P. Lester* (Buffalo).

5079. East, W. N. **Medical aspects of crime.** Philadelphia: Blakiston, 1936. Pp. 447. \$6.50.—*R. R. Willoughby* (Brown).

5080. Elliott, H. S., & Elliott, G. L. **Solving personal problems. A counseling manual.** New York: Holt, 1936. Pp. vii + 321. \$2.00.—An account of the causes and treatment of numerous problems, together with detailed suggestions to those engaged in the work of treatment. The central emphasis is upon the planned life. Although psychological language is rarely employed in the book its style is not merely popular, and the statements made reveal their origin in psychological theory. The distinction between the lay and the professional counselor is consistently kept, attention being called to the limits of the former's activity. The topics include "childish and mature adults," "evasion of responsibility," and "the relation of personal and social problems." There is a concluding chapter on

religion and counseling.—*H. D. Spoerl* (American International College).

5081. Farnsworth, P. R., & Williams, M. F. **The accuracy of the median and mean of a group of judgments.** *J. soc. Psychol.*, 1936, 7, 237-239.—Mean judgments of a group of subjects do not coincide with the "to be judged" value if the subjects lack knowledge of the object to be judged, or are subject to the influence of systematic factors. The mean of judgments made alone closely approximates the mean of judgments made while in the group.—*E. B. Newman* (Swarthmore).

5082. Frazer, J. G. **The fear of the dead in primitive religion.** Vol. 3. New York: Macmillan, 1936. Pp. 333. \$5.00.—*R. R. Willoughby* (Brown).

5083. Graubard, M. **Biology and human behavior.** New York: Tomorrow Publishers (303 4th Ave.), 1936. Pp. 413. \$2.50.—The objective of the book seems to be that of showing the importance of biological information in the study of human behavior, especially in its social aspects. A semi-popular review is given of the method of science, the neuro-muscular groundwork of behavior, the sense organs, tropistic behavior, physiological equilibria, and the internal environment. There is a treatment of the basic facts of cellular development and growth, genetics and heredity. A chapter of 30 pages is given to the subjects of mutation, selection and evolution. There is a section on the science of human nature in which the author urges the use of biological principles in constructing generalizations about human activities. There is repeated emphasis on the need for such studies as are being carried out in comparative psychology. The author is interested in showing how the biological and social sciences may be correlated. The last chapter is written in a popular style and deals with heredity, race and social behavior.—*C. R. Carpenter* (Bard College).

5084. Hall, J. **Criminology and a modern penal code.** *J. crim. Law Criminol.*, 1936, 27, 1-16.—*L. Ackerson* (Illinois Institute for Juvenile Research).

5085. Hallowell, A. I. **Psychic stress and culture patterns.** *Amer. J. Psychiat.*, 1936, 92, 1291-1310.—The diagnosis of mental disorder in societies other than our own is dependent upon the determination of what is "normal" for any given culture. The psychotic individual, acting as if his delusional system were a reality, reifies a specific personal version of reality; the belief systems of primitive peoples cause them to act as if these beliefs were true, and the normal individual of a primitive society reifies the generic beliefs typical of the cultural heritage to which he has been subjected. "Thus, while there are many analogies between the delusional systems of psychotics and the beliefs of some of the so-called primitive peoples, the sources of these beliefs are very decidedly to be distinguished." The approved expression of psychic stress in various culture patterns varies; case material is given which shows how some of the characteristic culture patterns seem to function in relation to the psychic stresses of certain indi-

viduals. These are grouped under such headings as: institutionalized confession as a means of relieving psychic stress; an appeal to love magic to relieve shame, embarrassment, and perhaps unconscious guilt, as well as to combat a social attitude of ridicule.—*R. Goldman* (Worcester State Hospital).

5086. Hayes, S. P., Jr. **Voters' attitudes toward men and issues.** *J. soc. Psychol.*, 1936, 7, 164-182.—Further results from the questionnaire circulated to 11,834 voters just before the 1932 presidential election. On the issues of the campaign the replies reveal a large portion of doubtful or inconsistent answers. Insofar as the candidates had clear-cut positions with respect to these issues, their supporters seemed to agree fairly well with them. The direction of the causal relationship is, however, unclear.—*E. B. Newman* (Swarthmore).

5087. Hayes, S. P., Jr. **The predictive ability of voters.** *J. soc. Psychol.*, 1936, 7, 183-191.—A majority of voters supporting each of the two major candidates in the 1932 presidential election expected their candidate to win. Women uniformly exceeded the men in their expectation that the Republican candidate would win. Members of lower socio-economic groups showed more extreme faith in the probable success of their chosen candidate. Party regularity likewise decreased the accuracy of a person's predictions.—*E. B. Newman* (Swarthmore).

5088. Herzog, G. **Research in primitive and folk music in the United States; a survey.** *Bull. Amer. Coun. learned Soc.*, 1936, No. 24. Pp. 101.—*R. R. Willoughby* (Brown).

5089. Kahn, S. **Sing Sing criminals.** Philadelphia: Dorrance, 1936. Pp. 187. \$2.50.—*R. R. Willoughby* (Brown).

5090. Lavergne, B. **La théorie psychologique des crises économiques.** (Psychological theory of economic crises.) *Scientia, Bologna*, 1936, 59, 38-42.—During every period of increasing prosperity, the consumer is able to meet rising prices for a considerable time, inasmuch as rising prices represent an increase in disbursements to the agents of production. But ability to buy and willingness to buy must not be confused. The economic crisis comes from a public unwillingness to meet rising price levels. Only the return of confidence in the future will put an end to a crisis.—*D. W. Chapman* (Recorder's Court, Detroit).

5091. Leahy, A. **The measurement of urban home environment.** Minneapolis: Univ. Minnesota Press, 1936. Pp. 70. \$1.50.—This study was undertaken with the idea of constructing a scale that would give numerical expression to the nature and extent of variation existing in living conditions in urban homes. The interview method was used to collect information from at least one parent and one child from different urban homes concerning the material equipment of the home and the participation of the parents and the child in activities outside the home. An attempt was made to secure a fair sample of the homes of every occupational level. Following the classification proposed by Goodenough and Anderson,

each occupational class was represented by fifty or more homes. A summary of previous studies, a description and evaluation of the index used in this one, and a bibliography are included.—*J. Brockwell* (Brown).

5092. Lindstrom, D. E. **Forces affecting participation of farm people in rural organization; a study made in four townships in Illinois.** *Bull. Ill. Agric. Exp. Sta.*, 1936, 423. Pp. 48.—*R. R. Willoughby* (Brown).

5093. Mallay, H. **A study of some of the factors underlying the establishment of successful social contacts at the college student level.** *J. soc. Psychol.*, 1936, 7, 205-228.—The number of friendships and the time necessary for their establishment were studied for two closely equivalent groups of women students. The groups differed in the fact that one lived under normal dormitory conditions while the other consisted of members of a cooperative dormitory group. The existence of common activities in the latter group appeared to increase markedly the range and rapidity of establishment of friendships within that group. Traits of extraversion, emotional stability, vivacity, tolerance, conversational ability and generosity were correlated positively with number of friendships.—*E. B. Newman* (Swarthmore).

5094. McKain, W. C., & Whetten, N. L. **Size of family and parental traits.** *Rur. Sociol.*, 1936, 1, 20-27.—The five family traits used in this study were defined as follows: if both husband and wife were born in the city or both in the country they were said to have the "place of birth" trait in common; if the fathers of the couple were born in the same country the latter had the trait "national origin" in common; couples in which the husband was younger or was more than seven years older than the wife were said not to have the trait of "age" in common; couples who "had received within three years of the same amount of formal schooling" had the trait of "education" in common; if the couple held the same religious faith (Protestant, Catholic or Hebrew) they had a common trait of "religion." Couples having two or less of these traits in common had fewer children than those having three in common. Those with four traits in common had more children than those with three, and those with five had still more. This finding was found to hold roughly when age, religion and occupational status were held constant. No one trait seemed responsible for the entire trend. The population included families from Windsor and Montville, Connecticut.—*P. R. Farnsworth* (Stanford).

5095. Mosonyi, D. **A homogén gátlás törvénye a zenében.** (The law of homogeneous inhibition in music.) *Mag. psychol. Szle*, 1935, 8, 414-420.—*H. J. Wegrocki* (Worcester State Hospital).

5096. Nyirő, G. **A szélhámos lelkialkata.** (The psychological constitution of the swindler.) *Mag. psychol. Szle*, 1935, 8, 352-366.—The ability to simulate, a strong will to succeed, a vivid imagination, and an optimistic, hypomanic attitude toward life, if not controlled by adequate inhibitions, produce

the psychological foundation for a potential swindler. (Résumé in German.)—H. J. Wegrocki (Worcester State Hospital).

5097. Opler, M. E. Some points of comparison and contrast between the treatment of functional disorders by Apache shamans and modern psychiatric practice. *Amer. J. Psychiat.*, 1936, 92, 1371-1387.—A discussion of the functions, therapeutic or otherwise, performed by the shaman. The shaman is an adroit individual, capable of recognizing the needs of his clients. With proper ceremonial, etc., he is "directed" to treat the patient. His success is in dealing with functional or mental difficulties. A cure is impossible unless there is complete belief in the efficacy of the ceremony and the power of the performer, and the shaman, by various devices, gets the cooperation of the patient to promote the state of mind essential for a cure. The patient's difficulty is traced back to its origin. The Apache fears the supernatural power of those who have reason to dislike him; the aid of a powerful ally, the shaman, has a psychological effect on him. At the conclusion of a ceremony, setting restrictions or tabus on patients has, in some cases, a decided therapeutic value, offering a substitute for the original symptom. The shaman is the dominant figure throughout. In contrast with the psychiatrist, the shaman must have the complete faith of his patient, uses suggestion entirely, and does all the work for the patient. The excessive dependence of the patient on the shaman is unfortunate because the illness returns with a loss of faith.—R. Goldman (Worcester State Hospital).

5098. Papp, I. *Geographisch-historische Gesichtspunkte in der Sprachforschung. Erster Teil.* (Geographical-historical points of view in linguistic research. First part.) *Scientia, Bologna*, 1936, 59, 265-277.—Modern linguistics has succeeded in uniting the geographical and historical points of view into a higher discipline. The pioneer work in the historical-geographical method is mainly due to Bartoli. He established five laws by means of which conclusions concerning the history of a language may be drawn from its geographical relationships. He demonstrated the validity and use of these rules in application to the Romance, Indo-germanic, and Indian languages; and he has shown further that they carry important implications for folk-lore.—D. W. Chapman (Recorder's Court, Detroit).

5099. Papp, I. *Geographisch-historische Gesichtspunkte in der Sprachforschung. Zweiter Teil.* (Geographical-historical points of view in linguistic research. Second part.) *Scientia, Bologna*, 1936, 59, 325-337.—Since Bartoli's rules are supposed to have universal validity, it is interesting to apply them to the problems of the Hungarian dialects. Even a preliminary survey of this field shows promise that his principles are fulfilled and that they cast light on the origin and form of Hungarian speech.—D. W. Chapman (Recorder's Court, Detroit).

5100. Papurt, M. J. A psychologist looks at prison case work. *J. crim. Law Criminol.*, 1936,

27, 68-74.—"The case work unit must interest itself in other things than label sticking, other things than isolated therapy; other things than oft-times futile recommendations to administrative officers, other things than a querulous, semi-hysterical plaint about 'the antagonism of old-time wardens.' . . . In the training of personnel, in the better relations of the case worker with his fellow employee, in the positive leadership in the struggle for laws vital to his program, in the selling of himself to the inmate as well as to the administrator, in the interest in the 'normal' inmate as well as the 'abnormal,' in the interest in pertinent problems such as institutional architecture, and in the broad social outlook, lies the future of Case Work and Case Workers in the Correctional Field."—L. Ackerson (Illinois Institute for Juvenile Research).

5101. Perry, W. J. *The primordial ocean: an introductory contribution to social psychology.* London: Methuen, 1935. Pp. 391.—(Not seen).

5102. Pike, J. A. *What is second degree murder in California?* *Sth. Calif. Law Rev.*, 1936, Jan., 1-25.—The chief difficulty in distinguishing different degrees of fatal assaults is in the terminology used in the definitions. The author compares the use of terms as defined by psychology and the law. Deliberation is used in the same way by both. However, the law distinguishes between willed action which is intentional and that which is not, whereas psychology draws the line between volitional action and impulsive or ideo-motor action. Legally impulsive action is regarded as volitional. Legally, intention connotes volition plus some added factor which varies with every legal problem.—F. J. Gaudet (Dana).

5103. Robison, S. M. *Can delinquency be measured?* New York: Columbia Univ. Press, 1936. Pp. xxvi + 277. \$3.00.—Court appearances are unsatisfactory as a criterion of delinquency, and no better one has been proposed; complicated quantitative methods are misleading. Clarity is to be attained by definition of specific behavior types; the incidence of such types is influenced by cultural factors. Reported sex, race, religion, and locality differences are invalidated by these considerations.—P. S. de Q. Cabot (Simmons).

5104. Seashore, C. E. *Psychology of the vibrato in voice and instrument.* *Univ. Ia Stud. Psychol. Music*, 1936, 3, n. s. No. 317. Pp. 159.—This volume presents an abridgment of numerous technical accounts on the vibrato, with some new data, as an elementary textbook. The author "has attempted to state the scientifically established facts in the simple form of a continuous narrative with such emphasis and interpretation as would bring the practical aspects for psychology and music into relief." Methods of studying the vibrato, its characteristics, prevalence, and use in expression of feeling are discussed. Examples of its presence in voice and instrumental performance are given.—B. Wellman (Iowa).

5105. Sims, V. F., & Patrick, J. R. Attitude toward the negro of northern and southern college students. *J. soc. Psychol.*, 1936, 7, 192-204.—The

Hinckley scale for attitude toward the negro, forms A and B, was administered to 156 southern students at the University of Alabama, 115 students from northern homes at the same institution, and 97 northern students at Ohio University. The means for the three groups were 5.0, 5.9 and 6.7 respectively, indicating decreasing prejudice for the groups in the order mentioned. Comparisons of the different college classes within each group revealed little or no change for the southern students in the southern school, or the northern students in the northern school, but increasing prejudice for the northern students with longer attendance at the southern school. Differences reported were all reliable.—E. B. Newman (Swarthmore).

5106. Somogyi, J. **A fajpszichológia jelen állása.** (The contemporary status of race psychology.) *Mag. psychol. Szle*, 1935, 8, 104-122.—The author discusses methods of judging the racial allegiance of individuals and states that contemporary race psychology is rather a naive rationalization of group prejudices than a scientifically investigated subject matter. (Résumé in German.)—H. J. Wegrocki (Worcester State Hospital).

5107. Starch, D. **An evaluation of principles of behavior.** *J. appl. Psychol.*, 1936, 20, 183-192.—An analysis was made of statements of principle and maxims of behavior that may have practical value in everyday life, and a degree of preference for each submitted to diversified groups of people. The study shows seven basic principles, viz.: reciprocal behavior—golden rule; psycho-dynamics—know thyself; auto-dynamics—self-effort; hedo-dynamics—happiness; ideo-dynamics—power of thinking; balance or synthesis; and deo-fidelity. Some of the statements used in this study are included with preference scores.—R. S. Schultz (Psychological Corporation).

5108. Thomas, W. I. **Source book for social origins.** (6th ed.) Boston: Bruce Humphries, 1936. Pp. 858. \$6.00.—R. R. Willoughby (Brown).

5109. Thraum, M. L. **Zur Psychologie und Psychopathologie der Arbeitslosigkeit.** (The psychology and psychopathology of unemployment.) *Z. psych. Hyg.*, 1934, 7, 40-51.—R. R. Willoughby (Brown).

5110. Toffelmier, G., & Luomala, K. **Dreams and dream interpretation of the Diegueno Indians of Southern California.** *Psychoanal. Quart.*, 1936, 2, 195-225.—A study made of the functions of dreams among the Diegueno Indians furnishes an example of a primitive people for whom dreams and their interpretations constitute a vital part of the culture pattern. The investigation of this phase of their culture is assigned to rigidly trained dream doctors whose interpretations extend beyond the ordinary prophetic limits and include the recognition of functional mental disorders requiring professional treatment, with the dreams serving as a means of gaining insight into the personality problems presented. Emphasis is usually placed by the dream doctor on the patient's conflicts and desires, usually sexual, and a system of therapy has been developed with due

recognition of individual variation in symptom formation. The therapeutic value of dream narration is recognized, and usually the dream interpretation is made from the manifest content. Individual dreams show that the affect of an anxiety dream varies with the tribal status of the dreamer as well as the social and sexual status. Certain dream types seem to be limited to the witch doctors, and other dreams show the effect of white culture upon the manifest dream content. Emphasis is placed upon the need for further study of this type of material.—M. H. Erickson (Eloise Hospital).

5111. Tomori, V. **A parasztcselekvés lelki dinamikája.** (The psychodynamics of peasant behavior.) *Mag. psychol. Szle*, 1935, 8, 394-414.—H. J. Wegrocki (Worcester State Hospital).

5112. Wilke, W. H. **Student opinion in relation to age, sex, and general radicalism.** *J. soc. Psychol.*, 1936, 7, 244-248.—Students were given four attitude scales devised by the writer. Opinion in this group showed no relation to age, women were slightly more radical than men, and the scales showed positive intercorrelations indicating the possible existence of general radicalism.—E. B. Newman (Swarthmore).

5113. Zilboorg, G. **Suicide among civilized and primitive races.** *Amer. J. Psychiat.*, 1936, 92, 1347-1369.—One's own emotional viewpoint tinges his moral attitude toward suicide. The common belief that suicide rates increase with the development of civilization is contrary to fact, as shown by citations from anthropology and the histories of mass suicides by primitive peoples. The misconception that suicide is caused by mental disease is inconsistent with the available facts for different countries and racial groups. The clinical view that the depressive psychoses "monopolize the clinical right to commit suicide" needs revision. The suicidal impulse may be motivated by projections dealing with (1) anger, spite, and the unwillingness to submit to an outside force, (2) love, fidelity, and devotion to the dead, (3) incest, and (4) the socialized modification of (1), the hara-kiri type of destruction. These motivations "present a striking similarity to those found among neuroses and psychoses, among children, and among primitive peoples." Suicide is often idealized in the folk-lore of primitive races; the lower the cultural level of the race, the more deep-seated the suicidal impulse appears. To understand the psychic elements in self-destruction, it is necessary to have a comparative and comprehensive study of ethnological material.—R. Goldman (Worcester State Hospital).

5114. Zoltán, V. **Pascal valláskarakterológiájai képe.** (A picture of Pascal's religious character.) *Mag. psychol. Szle*, 1935, 8, 86-104.—The chief motif of Pascal's life was an almost mystical theocentrism mingled with elements of Jansenism. The first part of the study concerns the psychological characteristics of Pascal's personality, the second section the ideal factors; the third deals with Pascal's religious milieu, and the last is a description of Pascal's inner religious

development. (Résumé in German.)—*H. J. Wegrocki* (Worcester State Hospital).

[See also abstracts 4779, 4783, 4806, 4834, 4857, 4859, 4970, 4979, 4984, 5021, 5051, 5068, 5138, 5144, 5161, 5164, 5169, 5175, 5184.]

INDUSTRIAL AND PERSONNEL PROBLEMS

5115. Baumgarten-Tramer, F. *Principielles zur Anwendung der Psychologie in der Praxis.* (Principles of psychotechnics.) *C. R. VIII^e Conf. int. Psychotech.*, Prague, 1934, 37-41.—The paper stresses social aspects of psychotechnics and its contribution to mental hygiene of individuals or groups.—*H. E. Burtt* (Ohio State).

5116. Becker, I. *Zur Psychophysik der Schweißarbeit.* (The psychophysics of welding.) Würzburg: Triltsch, 1935. Pp. 94. RM. 3.—*R. R. Willoughby* (Brown).

5117. Bennett, W. *Occupations and vocational guidance; a source list of pamphlet material.* (2nd rev. ed.) New York: H. W. Wilson, 1936. Pp. 123. \$1.25.—*R. R. Willoughby* (Brown).

5118. Carvajal, E. *La iluminación de la casa.* (Illumination in the home.) *Rev. Organiz. cient.*, 1936, 5, 130-134.—Installation of electrical outlets, light intensity and ocular fatigue, and direct vs. indirect lighting systems are discussed qualitatively.—*R. M. Bellows* (Occupational Research Program).

5119. Chen, L. [An outline of industrial psychology.] Shanghai: Commercial Press, 1935. Pp. 187. \$35 mex.—The author regards industrial psychology not only as a social welfare movement but also as a technique which aims at a planned control of all industry. Thus a human element, the plan, is added to the purely mechanical process of production. The major problems of industrial psychology are discussed. The chapter headings are: (1) introduction; (2) environmental factors and efficiency; (3) fatigue and rest; (4) methods of work and efficiency; (5) industrial accidents; (6) problem of organization in the factory; (7) stimulations and motivations; (8) conclusions. The material is freely drawn from European and American writers.—*C.-F. Wu* (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

5120. Dimmick, G. B. *Differential interests of engineering graduates.* *J. appl. Psychol.*, 1936, 20, 221-226.—Miner's blank for analysis of work interests reveals significant items that differentiate graduate engineers from random college freshmen. These findings are suggestive for guidance in selection of courses and academic adjustment.—*R. S. Schultz* (Psychological Corporation).

5121. Gilbert, J. G. *Senescent efficiency and employability.* *J. appl. Psychol.*, 1936, 20, 266-272.—Persons in the sixties who engage in regular gainful employment are on the average superior intellectually to those unemployed, on the basis of the Babcock test of mental efficiency.—*R. S. Schultz* (Psychological Corporation).

5122. Kitson, H. *The occupation of the vocational counselor.* New York: National Occupational Conference, 1936. Pp. 7. \$0.10.—The article states the opinion of the author on various aspects of the occupation of the vocational counselor. Bibliography.—*J. Brockwell* (Brown).

5123. Lahy, J. M., & Korngold, S. *La fatigabilité est-elle une cause des accidents?* (Is fatigability a cause of accidents?) *Travail hum.*, 1936, 4, 153-162.—The authors distinguish fatigability from fatigue, and measure the former by auditory reaction time, aiming and punching tests. No tendency is found for persons with accident records to show greater decrement in mean reaction time or in variability. The accident cases, however, show more extreme changes in both directions, increment as well as decrement. No differences are found in the aiming or punching tests. The instability in reaction time is attributed to nervous fatigability.—*H. E. Burtt* (Ohio State).

5124. Lauer, A. R. *Methods of measuring the ability to drive an automobile.* *Engng Bull. Ia Est. Serv.*, 1936, No. 115. Pp. 39.—This bulletin "represents a very cursory and non-technical description of methods used so far in measuring automobile driving performance." Experimental data supporting the statements are not included. A general description of apparatus is given. The author states that "these tests are perhaps as well authenticated as most other tests used today in professional work." Accidents have been reduced 50% in some commercial companies by such methods in conjunction with a well organized educational program.—*B. Wellman* (Iowa).

5125. Likert, R. *A method for measuring the sales influence of a radio program.* *J. appl. Psychol.*, 1936, 20, 175-182.—"To accurately measure the effectiveness of a radio program we should determine not only the nature and size of the listening audience but also the effect of the program upon the buying habits of that audience. These two measures will permit us to compute the sales influence of a program and also to determine what part of a program needs strengthening in order to obtain the maximum sales influence."—*R. S. Schultz* (Psychological Corporation).

5126. Longstaff, H. P. *Effectiveness of children's radio programs.* *J. appl. Psychol.*, 1936, 20, 208-220.—The study was based on questionnaire interviews with 1020 children. More boys listen and associate program with brand products than girls. Intelligence seems to play no important part in determining listening and memory for program.—*R. S. Schultz* (Psychological Corporation).

5127. Pan, S. [The applications of psychology.] Shanghai: Chung Hwa Book Co., 1935. Pp. 126. \$45 mex.—The author states in his preface that "This book will lay emphasis on an account of the major problems of applied psychology in the various fields rather than on a detailed discussion and description of its methods and experimental results. . . . Whenever experimental results are touched,

they are used only for illustrating the nature of the problems and consequently will not be complete and exhaustive." The chapter headings of the book are: (1) psychology coming into applications; (2) work and fatigue; (3) physical environment of work; (4) physiological conditions of work; (5) fitting the individual to his vocation; (6) psychology applied to the factory; (7) psychology applied to medicine; (8) psychology applied to law; (9) applications in education; and (10) other applications such as in politics, communications, and military affairs.—*C.-F. Wu* (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

5128. **Ryan, A. H., & Warner, M.** The effect of automobile driving on the reactions of the driver. *Amer. J. Psychol.*, 1936, 48, 403-421.—The purpose of the present study was "to determine the effect of a moderately long day of driving on the efficiency of the driver, and thus indirectly to throw some light on the causes of accidents." The 6 S's ranged in age from 19 to 30 years; all were high school graduates and 2 were college graduates; they worked on alternate days. Between 8 and 9 on the mornings they worked, they drove over a specified route through the city. At 9 a.m. they reported to the laboratory for a series of tests (postural steadiness, hand-eye coordination, visual efficiency, color naming, mental addition), then started on the rest of the driving, which lasted until approximately 7:30 p.m., with an hour out for lunch. The drive covered a total distance of about 300 miles. At 7:30 the drivers returned for the tests in the laboratory. On control days the drivers drove for one hour in the morning, but spent the rest of the day in light activity or recreation; meals and times for tests were spaced as on experimental days. The results showed that there is a demonstrable fatigue effect from a long automobile drive. The average increase in body sway was about 8%, and the variability of performance was considerably increased after driving. Hand-eye coordination showed a decrease in accuracy on one test of 3% and of 24% on the other; variability in both cases was increased. Visual efficiency as measured by amount of blurring was decreased by 3% by driving. Time required for color naming was increased 4% and errors were increased 46.8%; variability in errors was increased, but variability in time was decreased by driving. Time required for mental arithmetic was increased 8.5%, while errors increased 17.5%; variability was very much increased by driving. It is suggested that the loss in these capacities may render the driver more prone to accidents.—*D. E. Johannsen* (Skidmore).

5129. **Silberer, P.** *Verkaufs und Reklame Psychologie*. (Psychology of selling and advertising.) Zurich-Leipzig: Max Nicnans, 1935. Pp. 196-200.—A general survey of selling and advertising psychology; a study of advertisements to predict their success; and a study of selection of sales personnel and sales executives by tests and training through "service shopping."—*H. E. Burtt* (Ohio State).

[See also abstracts 4833, 4926, 5056, 5152.]

EDUCATIONAL PSYCHOLOGY

5130. **Ananев, B. G., & Sergeeva, L. I.** *Psichologiya pedagogicheskoi otsenki*. (Psychology of appreciation in the school.) *Trud. Inst. Isuch. Mosga Bekht.*, 1935, 4, 1-142.—A monograph on the influence of the school on the development of personality through the medium of the teacher's sympathetic understanding of the pupil. The Soviet educational system is particularly adapted to giving admirable examples in this regard, since it fosters individualization. The development of appreciation begins with the teacher's attitude in the psychological situations arising during class. The school report represents a system of isolated appreciations. The authors discuss the effect of the teacher's attitude and the school report on the pupil's self-esteem, self-criticism and ambitions, and on his position in the home and the school collective. They also analyze the heterogeneous group of "average" pupils, who are the group least understood by the teacher.—*M. E. Morse* (Baltimore).

5131. **Anspach, C. L., & Congdon, W. H.** *Problems in educational sociology*. New York: American Book, 1935. Pp. 314.—*R. R. Willoughby* (Brown).

5132. **Baker, H. J.** The psychology of ability groups and implications for instructional differentiation. *Yearb. nat. Soc. Stud. Educ.*, 1936, 35 (Pt. I), 135-160.—Each of the instructional groups, the bright, the average and the slow, is discussed from the standpoint of (1) characteristic learning qualities, involving a consideration of quantitative mental and learning factors and qualitative mental factors, (2) curriculum objectives and methods of teaching, (3) the qualifications of teachers, and (4) the differentiation of curricula. Other factors not covered refer to the fact that bright pupils are above average physically, possess more desirable social and personal characteristics than do average and slow pupils, and "easily discover a logical coordination of their various school subjects"; slow pupils tend to show a range of special abilities and disabilities similar to those of bright pupils, but unlike the latter cannot deal with them as effectively; the muscular coordination and motor control of average and bright pupils tends to be superior to that of slow pupils, while the latter are inclined to have anti-social and generally undesirable personality characteristics. "The qualifications of teachers for average pupils imply a much wider range of competence than has ordinarily been assumed." Concerning curriculum adjustments, "the preparation of curricular materials for ability groups has been confined largely to city school systems. In part this may be due to the fact that the problem is most acute and best understood here."—*P. S. de Q. Cabot* (Simmons).

5133. **Boda, I.** *Tervezet az érettségi vizsgához kapcsolódó válogató értelmesség-vizsgálat és a középiskolai növendékekéről vezetendő személyi megfigyelő napló tárgyában*. (A plan for a selective intelligence examination of "maturity" candidates; and the problem of a daily record of observations of intermediate school pupils.) *Mag. psychol. Szle.*

1935, 8, 153-189.—*H. J. Wegrocki* (Worcester State Hospital).

5134. *Chou, H. C.* [The school schedule and mental fatigue.] *Educ. Res.* (Chinese), 1935, No. 59, 7-19.—This investigation aimed to study whether learning ability decreases due to mental fatigue as school procedure goes on. Six series of nonsense syllables were used as material; each series consisted of 20 syllables. The subjects used were all junior high school students, and were tested in their respective classrooms. During the period of experimentation, except for special reasons, no change was made in the daily school schedule. The tests were given at 8:20 a.m., 9:40 a.m., 10:45 a.m., 11:45 a.m., 2:30 p.m., and 3:25 p.m. Ten min. were allowed for learning and 2½ min. for reproduction. "Class honor" and "individual honor" were used as incentives to elicit the maximum effort on the part of the students tested. 48 complete records were obtained. A percentage comparison of the learning efficiency at different periods with the value of the first period as standard was made. The results showed that both quantitatively and qualitatively the students' mental efficiency not only sustained no loss as the school schedule went on, but except for a slight qualitative decrease at the 2nd period there was increment at all periods. The author concluded that the students' learning ability did not lose efficiency with the progress of the school schedule; in other words, continuous learning did not show fatigue. The improvement made at successive periods was due to transfer of learning method in the memorization of nonsense syllables. The present findings agree with those of Heck. Thus school teachers should pay attention to interests of students rather than to arrangements of curricula. Whenever there is a loss of learning efficiency as the school schedule goes on, it must be due to monotony of the school subjects or lack of proper method and not to mental fatigue.—*C.-F. Wu* (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

5135. *Cornell, E. L.* Effects of ability grouping determinable from published studies. *Yearb. nat. Soc. Stud. Educ.*, 1936, 35 (Pt. 1), 289-304.—Although conflicting opinions concerning ability grouping have not been settled by experimental studies, considerable progress has been made in clarifying problems and in an increasing "recognition and control of significant conditioning factors." The confusion of the findings may be due to conflicting ideas regarding the objectives of democratic education, to the presence of the practical exigencies of administration and teaching, which prevent the control of isolated factors over a satisfactory time period, to the inadequacies of the tests used to measure changes in achievement, to the different teaching conditions under which experiments have been conducted, or to the fact either that many factors are present which are not susceptible to measurement or that satisfactory objective results have not been obtained in the field of testing changes in social attitudes and in thinking and work habits. "Experi-

mental studies have in general been too piecemeal to afford a true evaluation of results, but when attitudes, methods and curricula are well adapted to further the adjustment of the school to the child, results, both objective and subjective, seem to be favorable to grouping."—*P. S. de Q. Cabot* (Simmons).

5136. *Cunningham, W. F.* Corecreation. *Cath. educ. Rev.*, 1934, 32, 531-539.—A plea for common participation in activities not strictly curricular by adolescent boys and girls attending non-coeducational schools. Corecreation is necessary for salutary adjustment to the opposite sex and as preparation for adult life.—*W. Wilkins* (Notre Dame).

5137. *Fan, T. T.* [A consensus of adults' opinions of learning.] *Chung Hwa educ. Rev.*, 1935, 23, No. 1, 161-180.—Two questionnaires composed of a number of problems largely adapted from Thorndike's were sent out to get a consensus of adults' opinions regarding their experience and attitudes of learning. The replies of 373 persons who had received varying degrees of education were obtained and analyzed according to 4 age groups: 20-25 years (261 persons), 26-30 years (60 persons), 31-35 years (29 persons), and 36-63 years (23 persons). The results showed that almost all ages could learn and that plasticity or teachability was still high. There was still learning even after the age of 25. Although there was no limitation of the learning age, a comparison of the facts indicated that the period from 6 to 30 years was a common learning age and that the period from 16 to 25 years was the more important age for learning. Breaking food and drink habits was slightly more difficult after the age of 26; learning of Chinese music, piano, language, oration, etc., was slightly more difficult after the age of 30. As regards the learning of other things, all age groups considered that learning at that time was not more difficult than learning in the earlier ages. Thus it was inferred that learning may not be much varied due to difference of age. In fact, the learning ability of the adults may sometimes surpass that of the children. Learning of food and drink habits began in earlier years; learning of school subjects and economic independence was generally concentrated in the period from 16 to 30 years, especially from 20 to 25 years; basketball and tennis were learned mostly in the adolescent age or school days. Thus it is clearly seen that the period of human learning was largely determined by necessity and opportunity at that time. Age is really a minor factor. The results of the present investigation point out the social fallacy that adults cannot learn, consolidate the psychological basis of adult learning, and stimulate those in charge of adult education to improve their methods.—*C.-F. Wu* (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

5138. *Foran, T. G.* Vocabulary of primary reading. *Cath. educ. Rev.*, 1934, 32, 596-607.—Primary reading materials still contain too many difficult words, and many difficult words are repeated in various contexts too infrequently to allow for adequate learning. Words not included in the Gates or other lists should

be omitted in the construction of such materials.—*W. Wilkins* (Notre Dame).

5139. **Foster, J. C., & Headley, N. E.** *Education in the kindergarten.* New York: American Book, 1936. Pp. 380. \$2.00.—*R. R. Willoughby* (Brown).

5140. **Hwang, K. M.** [A textbook of educational psychology.] Shanghai: Commercial Press, 1935. Pp. 390. \$1.00 mex.—The organization of this volume departs from contemporary textbooks in that (1) the chapter on the principles or laws of learning is placed at the end instead of at the beginning of the discussion of psychology of learning, (2) a special chapter is devoted to detailed description of the experimental methods of educational psychology, and (3) discussion of the effective methods of learning and guidance occupies about one fourth of the book. Part I, an introduction, discusses (in 3 chapters) the nature and scope of educational psychology, as well as the physiological and psychological foundations of learning and guidance. Part II deals with psychology and discusses (in 6 chapters) the problems of motivation, progress, fatigue, forgetting, transfer, and the principles of learning. Part III deals with guidance of learning and discusses (in 5 chapters) guidance of reading, thinking, and experimentation in educational psychology. Part IV deals (in 2 chapters) with the effective methods of learning and guidance. At the end of each chapter is added a concise completion test which serves as a general conclusion of the chapter, and exercises of experimentation. The material of this book was freely drawn from the writings of western psychologists, but the greatest influence was exerted by Gates, under whose direction the outline of the present volume was shaped when the author was a student at Teachers College, Columbia University.—*C.-F. Wu* (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

5141. **Kelly, W. A.** *Mental hygiene as a phase of progressive education.* *Cath. educ. Rev.*, 1935, 33, 164-170.—"A sound system of mental hygiene must be based on a specific knowledge of human motivation, of the significance of attitudes, of the expression of emotion, of modes of conduct." At the present time insufficient account is taken of the volitional factors in conduct.—*W. Wilkins* (Notre Dame).

5142. **Kuntz, L. F.** *Methods of college teaching.* *Cath. educ. Rev.*, 1934, 32, 385-395; 482-489.—This review of the literature on experimental studies of learning in college and of methods of teaching from the viewpoint of desirable psychological changes wrought in the student points out that the application of the psychology of learning to college subjects has been unsuccessful because of the nebulousness of objectives of college instruction.—*W. Wilkins* (Notre Dame).

5143. **Kuo, I. T., & Wu, S. H.** [A textbook of educational psychology.] Shanghai: Chung Hwa Book Co., 1935. Pp. 294. \$1.00 mex.—Part I of this book is a general introduction and discusses (in 5 chapters) the relation of psychology to education, the problems of educational psychology, etc. Part II deals with psychology of development and

discusses (in 12 chapters) the methods of studying child development; physiological development; behavior of the newborn; emotions of the child; motor development; development of perception, intelligence, learning, language, and social behavior; children's drawing; play and the child's life. Part III deals with psychology of individual differences and discusses (in 4 chapters) variations in intelligence and character, etc. Part IV deals with mental hygiene and discusses (in 5 chapters) the gifted child and his education, the feeble-minded and defective child, methods of mental hygiene, etc. Part V deals with psychology of learning and discusses (in 14 chapters) the process of learning, the basic elements in learning—memory, the learning curve, factors influencing learning, motives of learning, economic methods of learning, learning and fatigue, adult learning, etc. Part VI deals (in 12 chapters) with psychology of school subjects and methods of measuring teaching efficiency.—*C.-F. Wu* (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

5144. **Lane, D. A.** *Some major implications of the Fifth Yearbook of the Journal of Negro Education.* *J. Negro Educ.*, 1936, 5, 521-526.—Since the American negro is confronted with distinctive problems in addition to the problems peculiar to American life, the negro school must not only assume the general functions of the American school, but must also accomplish certain social objectives. Inadequate financial support prevents the segregated school from carrying out a satisfactory program. While striving for the ultimate goal of "an interracial society with interracial schools," educators must continue to improve the educational facilities of the segregated school.—*H. S. Clapp* (Grasslands Hospital, Valhalla, N. Y.).

5145. **Narly, C.** *Das Leben und die Schulbildung.* (Life and school.) *Z. Jugendk.*, 1935, 5, 165-177.—The aim of education in schools should be methodical introduction to a synthetic environment. School organization should be patterned after life, which alternates work and rest, rest as a problem of hygiene, as a relaxation through change of occupation, and as an opportunity for increased social contact, and work as an expression of spontaneous energy expended in many directions, as in play and as related to an imposed task. Contact with the outer world enables one to find out how congenial a task will be and to choose an occupation to which one is suited. The Gavanescul plan at the experimental school of the pedagogical seminary at the University of Cernauti incorporates some of these ideas in the principles underlying its curriculum: the humanistic or care for the training of emotions, the social or training for productive harmony with the environment, the principle of integration, and the principle of concentration.—*M. Lee* (Chicago).

5146. **Nelson, M. J., & Denny, E. C.** *The multiple choice spelling test.* *Sch. & Soc.*, 1936, 44, 15-17.—The authors constructed a multiple (5) choice spelling scale, the choices presented in each item being, with the exception of the correct form, those

misspellings occurring most frequently in the returns obtained from 300 children who wrote the words in a written recall test. The scale, composed of two forms of 100 items, was given to 700 pupils, grades 3 to 8, to whom the words had been dictated as a written recall test a week earlier. The written recall and multiple choice tests correlated .86 to .93, depending on the grade; the two forms of the latter correlated .89 to .95. The authors consider that the possibilities of the multiple choice form have been underrated. It has the advantages over the written recall form of being self-administering, of permitting each pupil to proceed at his own pace, of being uninfluenced by the faulty pronunciation of the experimenter, and of being easier to score and administer. It does not appear to be entirely satisfactory for the diagnosis of spelling difficulties requiring remedial treatment.—*H. L. Koch* (Chicago).

5147. **Punke, H. H. Leisure-time attitudes and activities of high-school students.** *Sch. & Soc.*, 1936, 43, 884-888.—The article deals with the leisure-time attitudes and activities of students in 11 Illinois and 11 white Georgia high schools, the schools ranging in size from 90 to 650 pupils. The questionnaire method of gathering the data was employed. Georgia students, according to the returns, spend more time in a tending athletic events, movies, dances, and religious services than do Illinois students. The latter report more gainfully occupied than do the former. On the whole, the type of radio program which ranks high in interest value for these adolescents is concerned with the more transient and superficial aspects of civilization. Students in both states prefer to be with others during their leisure time. Illinois students, however, tend to prefer to be alone when working, while the reverse obtains for the Georgia group.—*H. L. Koch* (Chicago).

5148. **Ramos, A. Os furtos escolares.** (Thefts in school.) *Arch. bras. Hyg. ment.*, 1934, 7, 229-235.—*R. R. Willoughby* (Brown).

5149. **Rankin, P. T., Anderson, C. T., & Bergman, W. G. Ability grouping in the Detroit individualization experiment.** *Yearb. nat. Soc. Stud. Educ.*, 1936, 35 (Pt. 1), 277-288.—This report constitutes an evaluation of the "relative effectiveness of three levels of adaptation to differences in bright, average and dull pupils." Considerable adjustment is represented by the vertical plan, moderate adjustment by the typical Detroit plan, and little or no adjustment by the mass plan. Data were collected on about 500 pupils in each plan in grades III through VI in two schools, with three schools cooperating in the adoption of the vertical plan. "Comparisons were made on the basis of test results and of judgments by participating teachers and outside observers." Evidence supplied by teachers supported the usual findings that the profession prefers ability grouping and considers it to be effective. According to test results "the vertical plan is superior to the Detroit and mass instruction plans in reading, but it is inferior to the Detroit plan in arithmetic." Outside observers ranked the Detroit plan highest,

the vertical plan next highest, and the mass instruction plan lowest. In general either plan that allowed for ability grouping seemed to produce more satisfactory results than did mass instruction.—*P. S. de Q. Cabot* (Simmons).

5150. **Rauth, J. E. Scoring objective tests.** *Cath. educ. Rev.*, 1935, 33, 140-147.—Of 472 algebra achievement tests scored by teachers, only 196 were without mistakes in scoring; teachers tended to underscore rather than overscore. Of 133 Terman group intelligence tests, only 42 were scored correctly, 2 mistakes per test being the average. Similar mistakes were found by rescored Stanford Achievement and Otis Group Intelligence tests. Analysis of these mistakes shows that the majority are due to carelessness.—*W. Wilkins* (Notre Dame).

5151. **Schiller, P. H. Érettségittek értelemvissgálatá.** (Intelligence examinations of "gymnasium" graduates.) *Mag. psychol. Szle*, 1935, 8, 425-436.—*H. J. Wegrocki* (Worcester State Hospital).

5152. [Various.] **A programme of desirable investigations on the topic of vocational guidance.** *Brit. J. Psychol.*, 1936, 27, 119-125.—The suggestions in this article have come from several British psychologists who are interested in vocational guidance. It contains a short outline, without discussion, of the fundamental problems and methods of vocational guidance, and is put forward in the hope of organizing and guiding research along this line.—*J. Brockwell* (Brown).

5153. **Wang, H. L. [Psychological and educational measurement.]** Shanghai: Commercial Press, 1935. Pp. 947. \$5.50 mex.—Part I is a general introduction and consists of 5 chapters. Chapter I deals with some basic ideas of psychological measurement. Chapter II reviews the origin of mental testing and the historical background of the Binet-Simon scale. Chapter III reviews the general status of testing work in America, England, Italy, Germany, and China, since the publication of the Binet-Simon scale. Chapter IV reviews the history of educational measurement. Chapter V describes the kinds and uses of psychological tests. Part II deals with the methods of measurement and consists of 17 chapters. Chapter VI discusses the elements and necessary conditions of a test. Chapters VII and VIII cover a general examination and comparison of the variable quantities in age scale, grade scale, percentile scale, and T-scale. Chapter IX gives samples and comparisons of some individual language intelligence scales, such as the Binet scale and its revisions by Terman, Kuhlmann, Yerkes, Herring, and Luh. Chapter X gives samples of some individual non-language intelligence scales, such as the Pintner-Paterson scale of performance tests, Healy and Fernald tests for practical mental classification, and Porteus maze test. Chapter XI gives samples of some group intelligence tests. Chapters XII-XIX deal with arithmetic tests; tests for handwriting, drawing, music, and gymnastics; common-sense tests; tests for other high-school subjects; Otis classification tests, Stanford achievement tests, and Cha's educational tests for school

survey; vocational tests; and character tests. Chapters XX and XXI deal with the methods of construction of tests, such as the Terman revision of the Binet scale, T-scale, percentile scale, and product scale. Chapter XXII discusses some problems in construction and application of tests, such as the form of the test, selection of subject-matter, organization and formulation of items, and scoring. Part III deals with a theoretical discussion of the nature and problems of intelligence, and consists of 2 chapters. Chapter XXIII reviews the theories of intelligence and discusses the definitions, contents, distribution, and growth of intelligence. Chapter XXIV deals with the studies of mental inheritance. Part IV is a comprehensive summary of the results of testing work and consists of 11 chapters. Chapters XXV-XXXIV deal with studies of the relationship between intelligence and education, intelligence and feeble-mindedness, intelligence and genius, intelligence and vocation, intelligence and sex difference, intelligence and race, intelligence and poverty, and with studies of criminal intelligence, intelligence of the physically defective and of soldiers respectively. Chapter XXXV is a general conclusion.—C.-F. Wu (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

[See also abstracts 4833, 4958, 5014, 5160, 5162, 5176.]

BIOMETRY AND STATISTICS

5154. Boda, I. *Egyeszerű korrelációs számítás.* (A simple correlation method.) *Mag. psychol. Szle.*, 1935, 8, 378-394.—Four formulas to simplify the correlation procedure are presented, together with illustrative examples. (Résumé in German.)—H. J. Wegrocki (Worcester State Hospital).

5155. Castellano, V. *Recente letteratura sugli indici di variabilità.* (Recent literature on the indices of variability.) *Metron*, 1935, 12, 101-131.—R. R. Willoughby (Brown).

5156. Gordon, K. *A table for finding rho for any value of SD when N equals ten.* *J. Psychol.*, 1936, 1, 207-208.—R. R. Willoughby (Brown).

[See also abstracts 4786, 5064.]

MENTAL TESTS

5157. Alexander, W. P. *Intelligence, concrete and abstract.* *Brit. J. Psychol., Monogr. Suppl.*, 1935, No. 19.—R. R. Willoughby (Brown).

5158. Bergen, G. L. *Some observations on large scale testing.* *J. appl. Psychol.*, 1936, 20, 249-257.—A brief review of phases of the testing program in the Adjustment Service of New York City. The author stresses the obvious limitation of "psychometric tools" in such an emergency set-up and the need for a research division in combination with such service units.—R. S. Schultz (Psychological Corporation).

5159. Brander, T. *Om användbarheten av den originala, respektive den modifierade Binet-Simon'ska intelligensmätningsmetodiken i Finland.* (On the practical use of the original and of the modified

Binet-Simon intelligence measurement technique in Finland.) *Finska Läkarensällsk. Handl.*, 1936, 79, 395-408.—A brief account of the work of Ora and Rosenquist in Finland with the Binet-Simon-Boberdag technique, and especially of the recent work in Norway by Lofthus with the Terman-Binet-Simon. Lofthus' work resulted in different average intelligence quotients at different age levels and also differentiation of Terman IQ's for the two sexes at similar age levels. Thus, the average IQ for an 11-year-old child as found by Lofthus was 91. The writer criticizes Lofthus, constructs several tables and charts for clarification of the Norwegian results, and concludes that, properly standardized and evaluated, the Terman scale would probably be the best scale for Finland. Bibliography.—M. L. Reymert (Mooseheart Laboratory for Child Research).

5160. Buros, O. K. *Educational, psychological and personality test of 1933, 1934 and 1935.* *Stud. Educ., Rutgers Univ. Bull.*, 1936, 13, No. 9. Pp. 83. \$0.50.—The aim of this publication is to assist test users and technicians in locating available tests. For each test listed the title, the author, the date of publication, the cost, the publisher and references are given.—J. Brockwell (Brown).

5161. Chang, K. [Application of Goodenough's intelligence test by drawing in China.] *Chung Hwa Educ. Rev.*, 1935, 23, No. 5, 49-55.—More than one thousand kindergarten and primary-school pupils at Hangchow, whose ages ranged from 3 to 16 years, were tested in groups, in their respective classrooms, by their respective teachers, according to a prescribed procedure common to all groups. The method of testing was the same as Goodenough's, except that in the present study the subjects were required to draw "a human being," regardless of the sex. 737 drawings were included in the data. All the scoring was done by the same person, who had been trained for the purpose according to a scoring scale modified after Goodenough's. The average age scores were calculated, and age norms were constructed on the basis of the average scores for the normal group in each age and compared with those obtained by Goodenough. The improvement was found to be 4 points for each age from 3 to 13.5. The average grade scores were calculated and the grade norms, which had not been studied by Goodenough, were also tentatively constructed on the basis of the average scores in each grade. The improvement was found to be 4.5 points for each grade from I to VI. The author concluded that except for certain modifications or supplementations Goodenough's intelligence test by drawing may be generally applied in China, and that the seven modifications or supplementations made in the present study may be considered reasonable. Finally, it was emphasized that the person in charge of the work of scoring the drawings should be given an accurate training in advance.—C.-F. Wu (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

5162. Esser, G. *The meaning of intelligence and its value for education.* *Cath. Educ. Rev.*, 1935, 33,

257-270.—Intelligence is defined as "a mental power which urges [man] to look for the deepest and ultimate in things, for the innermost reason of a thing, and to grasp the meaning of a thing by the concept." This conceptual definition of intelligence is shown to have educational implications for problems of motivation and for spiritual aspects of education.—W. Wilkins (Notre Dame).

5163. Hertzman, M. The effects of the relative difficulty of mental tests on patterns of mental organization. *Arch. Psychol.*, N. Y., 1936, No. 197. Pp. 69.—The problems of the study, one of a series under the direction of Henry Garrett, were (1) to find whether the level of difficulty of a test will affect its relationship with tests of different material, (2) to find whether the level of difficulty of a test will affect its relationship with other tests of the same material, (3) to study the implications of the results obtained from working out the first two problems for the general problem of mental organization. The results seem to leave no doubt that the heterogeneity of the level of difficulty of test items introduces a true functional heterogeneity. Provided that the items are not too easy, tests of the same material will correlate more highly with each other when they are of about the same level of difficulty. It is possible that if tests are too difficult correlations will drop.—E. M. Achilles (Columbia).

5164. Hill, H. S. Correlation between IQ's of bilinguals at different ages on different intelligence tests. *Sch. & Soc.*, 1936, 44, 89-90.—A group of 40 children, homogeneous as to age and environment, whose parents were immigrants from Italy were tested during their first year in the public schools with the Stanford-Binet test. In their fifth year in school the same children were given the National intelligence test, scale A, form I; and in their sixth year, the Otis self-administering test, form A. The IQ's obtained with the Stanford-Binet scale correlated with those obtained with the National and Otis tests, respectively, .72 and .78; while IQ's from the latter two tests correlated .86. The Binet IQ's of these bilingual children were therefore excellent indicators of their performance 4 to 5 years later on two group tests highly verbal in character. Consequently the author believes that the role of bilingualism as a depressor of IQ has been grossly overestimated. Size of Italian vocabulary as gauged by a word-meaning test correlated .31 with Binet IQ.—H. L. Koch (Chicago).

5165. Hsiao, H. H. [On the revision of Goodenough's intelligence test by drawing.] *Chung Hwa educ. Rev.*, 1935, 23, No. 6, 59-68.—The results of applying Goodenough's intelligence test by drawing to a group of 535 and another group of 346 elementary-school pupils at Nanking showed that the intelligence quotient calculated from the test scores was inversely proportional to the age. These findings led to the present attempt at a revision of the test. The first step of revision was made at Nanking when 1264 elementary-school pupils whose ages ranged from 3 to 13 years were tested. It was found that

the improvement was 2 points for each age from 5 to 9 and 1 point for each age from 10 to 13. Thus the results here obtained were quite different from Goodenough's. Here for the ages between 4 and 9 inclusive all median scores were higher, and for the ages between 11 and 13 inclusive lower, than Goodenough's standards. In order to ascertain the reliability of these results, another group of 2948 elementary-school pupils at Shanghai whose ages ranged from 3.5 to 14.5, were tested. The IQ's calculated according to Goodenough's standards tended gradually to decrease with increasing age, indicating that the results of the two previous studies were reliable. Furthermore, analyses of the data showed that this discrepancy between the two findings was not due to a change of the scoring method in the cases of long robe and long hair, nor to the nature of distribution of the drawings representing the male or female figure respectively, nor to sex difference in ability to draw. It was, therefore, concluded that Goodenough's standards are not applicable in China. However, owing to the small number of subjects tested in the present investigation, no norms could yet be constructed on the basis of the obtained results. A more extensive survey is now under way, by which it is hoped to determine whether Chinese children are really superior to American children as regards their ability to draw "a human being" and to construct age and grade norms for future use.—C.-F. Wu (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

5166. Lincoln, E. A. Stanford-Binet IQ changes in the Harvard growth study. *J. appl. Psychol.*, 1936, 20, 236-242.—There is a median change of 7 points in IQ on repetition of the Stanford-Binet examination in the Harvard growth study of 1200 children. The very inferior (IQ below 80) are most consistent, and the very superior (IQ 120 or over) are least consistent.—R. S. Schultz (Psychological Corporation).

5167. Mahan, H. C., & Witmer, L. A note on the Stanford-Binet vocabulary test. *J. appl. Psychol.*, 1936, 20, 258-263.—On the basis of data accumulated on 269 children ("none of whom were thought to be psychotic") brought to a mental health clinic, a table was developed to facilitate the estimation of Stanford-Binet mental age from score on the vocabulary test. The best 50 words in the Terman list of 100 are indicated.—R. S. Schultz (Psychological Corporation).

5168. Moritz, E. Études expérimentales et critiques sur les tests mentaux. *Adaptation belge du test de groupe de Ballard.* (Experimental studies and criticisms of mental tests. The Belgian adaptation of Ballard's group test.) Brussels: Edition du service des recherches psychopédagogiques (rattaché à l'Œuvre nationale de l'enfance), 1934. Pp. 116.—Ballard's group test was given to a group of physically handicapped children. 354 of the children spoke French and 177 Flemish. A comparison with the groups studied by Decroly indicates that the physically handicapped children (who had not always

received regular schooling) are retarded about two years in mental age; the median intelligence quotients for the two groups were 86 and 87.—(Courtesy *Année psychol.*)

5169. Shen, E., & Chang, K. [On the problem of application of Goodenough's intelligence test by drawing to Chinese children.] *Chung Hwa educ. Rev.*, 1936, 23, No. 9, 29-33.—The authors attempted to analyze and explain the discrepancy between the findings of K. Chang (see X: 5161) and H. H. Hsiao (see X: 5165) who both had applied Goodenough's drawing test to Chinese children at Hangchow and at Nanking and Shanghai respectively. According to the present authors, this discrepancy was not due to the sampling error, since the children tested at 3 places were not much different in the various respects and the number of children tested at each place was quite large; nor to difference in the testing procedure, since Goodenough's procedure was followed at all 3 places; nor to difference in the scoring method in the cases of long robe and long hair. The discrepancy may in a very small part be explained by a difference in the treatment of data, since Hsiao generally used the total scores of each age while Chang used the scores of the median group in each age. But the authors much doubt whether this discrepancy might have been caused by a difference in the degree of leniency in judging and scoring the drawings and suggest that this point is worthy of further study.—C.-F. Wu (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

5170. Thornton, G. R. A note on the scoring of movement in the Rorschach test. *Amer. J. Psychol.*, 1936, 48, 524-525.—A suggestion that it would be better to include all responses which otherwise correspond to Rorschach's concept of a movement response regardless of whether their content is human or non-human. This suggestion is based upon the statistical results obtained by testing 100 college students and analyzing their results.—D. E. Johannsen (Skidmore).

5171. [Various.] [A report of intelligence testing by the Porteus maze test.] *Educ. Greater Shanghai*, 1935, 2, No. 8 (special number). Pp. 88.—The testing section of the Bureau of Education of Greater Shanghai made an investigation of the intelligence of 7577 children, 4284 boys and 3293 girls, kindergarten and primary-school pupils at Shanghai, Nanking, Hangchow, Soochow, Wusih, Wuchiu, and Chinkiang, whose ages ranged from 2 to 16 years, by means of the Porteus maze test. The standard procedure and method of scoring were followed. The results showed that except in ages 2 and 16, where only one person was tested in each case and consequently no percentile comparison could be made, the performance at all ages well surpassed the passing marks, and that the mental age was always $\frac{1}{2}$ year ahead of the chronological age. However, this superiority of Chinese children in mental age might be largely accounted for by a difference in the method of counting the chronological age. In the present survey, the ages were counted by years and not by

months; e.g., a child of 6 years and 6 months old was located at age 6, while a child of 6 years and 7 months was located at age 7; thus a difference of only 1 month would result in a difference of 1 year. Besides, in the interpretation of the present findings, serious consideration must be given to the following factors which may have helped toward better performance, viz., (1) the children all seemed to belong to an upper level of intelligence; (2) the methods of collecting data at different places were rather diverse and the persons actually in charge of the testing work were rather too many, and consequently their verbal instructions were not quite uniform; (3) because of misunderstanding of the true meaning of the investigation on the part of some school authorities and classroom teachers, the children tested in several cases were rather selected and had been somewhat helped in one way or another; and (4) previous to this survey, a great many of the children tested had seen maze-like pictures elsewhere and had probably learned the method of tracing them. Nevertheless, it was concluded that the Porteus maze test, without any modifications or transpositions, might be used as a good intelligence scale for measuring Chinese children, especially for entrance examinations and classification of the kindergarten and lower grade pupils.—C.-F. Wu (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

CHILDHOOD AND ADOLESCENCE

5172. Exarchopoulos, N. Unterschiede der Körper- und Intelligenzentwicklung zwischen griechischen Kindern und Kindern anderer Nationen. (Differences in physical and mental development between Greek children and children of other nations.) *Z. Jugendk.*, 1935, 5, 113-126.—An extensive study of growth has been made at the laboratory for experimental pedagogy at Athens University. 14 measures (height, weight, chest and head circumference and diameters, interacromial distance, lung capacity and hand strength) were made on 7000 children. 4502 were measured each year from birth to 21. It was found that the growth curve has a wave-like form, with two periods of relatively rapid rise: birth to 2 years, and approximately 13-15. Some sex differences are found, and some differential growth rates for different parts of the body. These growth spurts are more marked than in other European nations. Although at birth and adulthood the Greek is absolutely smaller, at certain ages he is larger. Mental measurements were made on a Binet-Simon scale which was restandardized for Greek children. The average IQ was 96-105, but there were more above 105 than below 96, in contrast to Goddard's findings. Children from poor environments were average in IQ and those of higher social status were slightly better. An interpretation of the findings is suggested.—M. Lee (Chicago).

5173. Fursey, P. H. Maturation. *Cath. educ. Rev.*, 1935, 33, 88-99.—A review of critical literature, animal and human, on maturation, emphasizing the centrifugal rather than the centripetal development

of behavior, with implications for education.—*W. Wilkins* (Notre Dame).

5174. **Gaina, S.** *Psychologie und Jugendkunde in Rumänien.* (Psychology and the science of youth in Rumania.) *Z. Jugendk.*, 1935, 5, 177-184.—There is little unity in the psychology of Rumania. The departments at the different universities have their own special interests—didactic at Cernauti, sociological at Iasi, and scientific and literary at Bucuresti and Cluj. At the last the organic wholeness of the human mind is emphasized. The practical value of applied psychology in Rumania is recognized. Isolated studies in child psychology and other fields are listed.—*M. Lee* (Chicago).

5175. **Hatano, I.** *Byoga wo chushin toshite mitaru yoji ichinenkan no hattatsu.* (Development of a child for one year on the basis of drawing pictures.) *Kyoiku Shinri Kenkyu*, 1935, 10, 475-504.—The author says of her own child, three years old, that a general statement that mental development of children is more evident in the latent stages of their bodily growth than in the active ones is not applicable to her case, at least in drawing pictures. There has been found an alternation of a positive and a negative stage; in the positive stage, for instance, a decidedly positive characteristic prevails over the entire behavior of the child, and vice versa in the negative one.—*R. Kuroda* (Keijo).

5176. **Haxton, J. N., & Wilcox, E.** *Step by step in the nursery school.* New York: Doubleday, 1936. Pp. 238. \$1.50.—The commonest behavior patterns in the two- to five-year-old child needing correction or improvement are described here for the teacher-in-training or the parent.—*R. R. Willoughby* (Brown).

5177. **Hazard, C.** *The relation of reflex conduction rate in the patellar reflex to age in human beings.* *Univ. Ia Stud. Child Welf.*, 1936, 12, No. 1. Pp. 181-197.—Reflex time measurements and measurements of height and of reflex arc were obtained from 399 subjects ranging in age from birth to twelve years. Reflex time increased gradually with age. Conduction rate increased rapidly from birth to six years, and more gradually from the sixth to the twelfth year. Although the exact cause of slow reflex conduction rate in infants and the increase in rates was not definitely determined, it was thought that it could best be attributed to the effect of differences in length of arc with consequent differences in the proportion of nerve-trunk conduction to conduction through the slower conducting parts of the arc, and to possible differences in the rate of nerve-trunk conduction itself.—*B. Wellman* (Iowa).

5178. **Hsiao, H. H.** *[Child psychology and its applications.]* Shanghai: Commercial Press, 1936. Pp. 155. \$.70 mex.—This book aims at a synthetic review of the findings of European and American psychologists about child psychology and a description of the basic principles of child education, so as to help readers to carry on theoretical studies as well as to settle practical problems. The results of the author's studies of the psychology of Chinese children are also briefly presented. The first 3

chapters deal with the importance and rise of child psychology, its method of study, and the basic principles of mental development. The last 6 chapters deal with the development of motor ability, perception, intelligence, language ability, emotions, and sociability.—*C.-F. Wu* (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

5179. **Huang, L., Chen, C. M., & Yang, H. H.** *[Children's and uneducated adults' explanations of strange phenomena.]* *Chung Hwa educ. Rev.*, 1935, 23, No. 1, 67-86.—Chinese adults who were evening-school students and who ranged from 16 to 30 years in age, and Chinese children who were primary-school pupils and who ranged from 5 to 13 years old, were asked to explain strange phenomena. The number of adults used in the different cases varied from 30 to 15, that of children from 40 to 20. The strange phenomena studied were (1) an inverted empty bottle, (2) a floating needle, (3) a coin in the turning box, and (4) a silver dollar in a basin of water. All tests were conducted by two persons, one in charge of demonstration and conversation and the other of recording. In children's explanations of these strange phenomena there was no mysterious conception of causality. The explanations were based upon their previous information and experience; whenever there was conflict between these and the observed fact, either the cherished principle was abandoned and the explanation gradually changed or the same principle and consequently the same explanation were adhered to. Many reasons were concentrated in certain age groups, though some were widely scattered and not related to age. The adults' explanations showed the same characteristic features, except that no age relationship was determined. Adults' explanations were less diverse and less inconsistent and contradictory than children's. Whenever their explanatory reason was shown to be illogical by the experimental fact, the adults would not admit their fault but often had a tendency to argue, while the children, having admitted it often, would not or could not offer another explanation but often said "do not know." The authors concluded that so far as the children tested were concerned, there was neither a mysterious conception of causality nor a so-called mysterious stage as Piaget has pointed out; so far as the uneducated adults tested were concerned, there was also no magic-inspired idea of causality as Brühle has considered; and that the results of the present investigation are in accord with Huang's findings in America, thus indicating that in spite of the wide difference of social background the fundamental thought of Chinese and American children and adults in the explanation of strange phenomena is similar.—*C.-F. Wu* (Nat. Res. Inst. Psychol., Acad. Sinica, Nanking).

5180. **Irwin, O. C.** *Qualitative changes in a vertebral reaction pattern during infancy: a motion picture study.* *Univ. Ia Stud. Child Welf.*, 1936, 12, No. 1. Pp. 199-207.—Motion pictures of opisthotonus, or backward curving of the vertebral axis,

were obtained on three groups of infants: (1) 15 infants under ten days of age, (2) 14 children photographed consecutively at intervals of six weeks, and (3) four atypical cases, two blind, one retarded mentally and one an encephalitis case. This vertebral pattern passed through a series of stages during the first two years of life. Slight backward cervical bending was present during the first ten days. By the end of the first quarter year cervical opisthotonus was pronounced. The lumbar region was involved during the second quarter year, including extreme backward arching of a tonic character. A reorganization occurred about the beginning of the second half year, when backward bending was replaced by forward bending at the neck and hips. During the second year there developed a highly adaptive response in which the arms and fingers reached for the floor, the head was retracted in a visual orientation, and the child apparently tried to gain normal upright posture by walking forward on the hands.—*B. Wellman* (Iowa).

5181. Jablonszky, A. Az ifjúság jellemének fejlődését irányító lelki momentumokról. (Psychic factors which determine the character of the adolescent.) *Mag. psychol. Szle*, 1935, 8, 122-137.—Schizoid characteristics are very prominent in adolescence; they may become very troublesome if they are not outgrown. Vestiges of these characteristics are to be found in later stages of development. Psychopathic adolescents in particular show schizoid patterns, and should be treated by specialists in psychopathology at pedagogical institutes. (Résumé in Italian.)—*H. J. Wegrocki* (Worcester State Hospital).

5182. Katzaroff, D. Ziele und Richtungen der Kinderpsychologie in Bulgarien. (Goals and trends in child psychology in Bulgaria.) *Z. Jugendk.*, 1935, 5, 107-113.—The psycho-pedagogical institute of the University of Sofia is the only place in Bulgaria where work in child psychology is carried on. Recently the lines of study have been: (1) routine anthropometric measurement of all children in the elementary schools to determine the laws and peculiarities of physical development in Bulgarian children; (2) mental measurement by group tests of various kinds and individual tests in special cases; (3) research in problems of thinking and attention; (4) systematic observation of play to gain a deeper insight into the soul of the child; (5) investigation of spontaneous and organized grouping in children; (6) investigation of eidetic problems. Theoretically the clinical method of Piaget is held in greatest esteem, and when tests are used their value is increased by a full description of the behavior of the child, though it is realized that such use of the clinical method is essentially an art.—*M. Lee* (Chicago).

5183. Kempelen, A. Adatok a művelt magyar ifjúság fejlődésére. (Data toward a genetic psychology of the better-educated Hungarian youth.) *Mag. psychol. Szle*, 1935, 8, 371-378.—*H. J. Wegrocki* (Worcester State Hospital).

5184. Low, A. A. Studies in infant speech and thought. Part I. The development of sentence struc-

ture in infancy from the viewpoint of grammar. *Univ. Ill. Bull.*, 1936, 33, No. 39. Pp. 71.—A study of the language development of two boys, covering a period of two years and three months, one record beginning at age one year two months, the other beginning at age two years eight months. A total of 7005 utterances are analyzed. The interest is largely methodological. The duration of each of five stages of mastery in respect of each of twelve grammatical units is shown. The proficiencies of the two subjects proved to be specific; that is, none showed a uniform superiority in all items. On the basis of this fact the author criticizes the use of the length of sentence, or of any other single criterion, as an all-round measure of language development. Bibliography of 41 titles.—*W. Dennis* (Virginia).

5185. Lowenfeld, M. Play in childhood. London: Victor Gollancz, 1935. Pp. 333. 8/6.—(Not seen).

5186. Lowry, E. Work sheets for Arlitt's Adolescent Psychology. New York: American Book, 1936. Pp. 66. \$0.15.—*J. Brockwell* (Brown).

5187. Maier, N. R. F. Reasoning in children. *J. comp. Psychol.*, 1936, 21, 357-366.—39 children ranging in age from 43 to 95 months were required, in an apparatus similar in principle to that used with rats, to combine the essentials of two isolated experiences in order to reach a goal. Reasoning ability, as inferred from performance on the problem, "is relatively late in maturing. It is rarely developed to a marked extent in children below 6 years of age. The ability matures in different children at widely different ages even in the rather selected group of children tested, and the time of its appearance is related to the mental age." Bibliography.—*N. L. Munn* (Peabody).

5188. Matičević, S. Jugendkundliches Streben und Forschen in Jugoslawien. (Trends and studies in child psychology in Jugoslavia.) *Z. Jugendk.*, 1935, 5, 134-151.—It is difficult to summarize the work in this field in a country so diversified and recently united. The western or Slovak part, inclining more to German culture, is methodical and constructive, the eastern (Serbian), more subject to European influences, is biological-experimental, and the middle (Croatian) part, centering in Zagreb, is eclectic. In all fields the writings from the leaders in other countries have been translated and have aroused great interest, and in many cases have led to further original work along similar lines. Such work is briefly summarized under the headings: anthropological-medical, pedagogical-psychological, psychotechnical-vocational, and legal and welfare work.—*M. Lee* (Chicago).

5189. Mira, E. Die Jugendpsychologie in Spanien. (Child psychology in Spain.) *Z. Jugendk.*, 1935, 5, 185-186.—Although Spain had in Vives, 1492, the first child psychologist, until recently there have been too few good schools. The young republic has made education its first task and has built about 20,000 new elementary schools. It has also established a chair for education in the University of Madrid, and summer school courses which are raising the

standards of teaching. Recently many studies in all branches of child psychology have been published. Germain, Mira, Rodrigo and Xirau are now investigating the mental characteristics of the Spanish child.—*M. Lee* (Chicago).

5190. **Northway, M. L.** *The influence of age and social group on children's remembering.* *Brit. J. Psychol.*, 1936, 27, 11-29.—The remembering by children of different ages, from different social groups, of stories introducing different types of social interest was studied by the method of written serial reproduction. It was found that unfamiliar names and idioms were changed to more matter-of-fact and familiar ones. The part best remembered was the center of activity or social setting of the story. The material was usually recast about a general outline or detail highly meaningful to the group; the younger children and those of lower social class recast the story earlier in the series than did the others, and gave more diversity of form in their recasts. Each group selected material which was familiar and meaningful in its own social background. Thus the more "difficult" the material—the more foreign to the "psychological field"—the more it tends to be replaced by something easier and more familiar.—*M. D. Vernon* (Cambridge, England).

5191. **Ranschburg, P.** *Der Stand der jugendkundlichen Bestrebungen in Ungarn.* (The status of youth psychology activities in Hungary.) *Z. Jugendk.*, 1935, 5, 187-200.—Much work has been done in Hungary on the general topic of inheritance and environment. Inheritance of psychopathic tendencies in relation to criminality and sterilization, significance of the geno- and phenotype, moral imbecility, the only child, change in personality in relation to gross brain change, hygiene of the school age, and gifted children and their problems are some of the many subjects that have been studied in this field. The author also lists the chief theoretical

contributions to child and adolescent psychology from the institutes at Budapest, Debrecen, Pécs, and Szeged, as well as the work at nine state institutes devoted especially to the study of normal and abnormal children. Nine scientific societies and foundations for research in child psychology and related fields are likewise listed with their publications.—*M. Lee* (Chicago).

5192. **Skard, A. G.** *Die jugendkundliche Forschung in Norwegen.* (Research in child psychology in Norway.) *Z. Jugendk.*, 1935, 5, 151-157.—During the past 5 years not much has been done in Norway with the exception of such isolated studies as the following: The Binet-Simon scale has been standardized by Lofthus. 1246 Oslo children were tested, many of them clinic patients. The year allocation of the tests is given. The Dearborn group test has been given to 1476 children in Trondhjem by Marie Peterson. Her 6-year-olds were the brightest and 8-year-olds the dullest, as only the more intelligent children in Norway go to school at 6. Difference in social status is associated with 9% difference in IQ (cf. 14% in U. S. A.). Skard has attacked the problem of sex difference in expression in describing a given picture. Barden has studied estimation of angles in boys and girls 14-18 years old. Aall has published a study of moral judgment in children based on stories read to them. Three studies by Ribbsskog on (1) effect on retention of varied intervals of learning in relation to type of material, (2) correlation between school difficulties in different subjects, (3) effect of praise and blame in school, have results consonant with previous studies. Mention is made of a study by Bergensen on written errors in the mother tongue, and of a published 400-page diary of a Norwegian boy covering the years between 10 and 24.—*M. Lee* (Chicago).

[See also abstracts 4847, 4848, 4850, 4853, 4856, 4859, 4862, 5091, 5126, 5147, 5166.]

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